WEBVTT

00:00:17.110 --> 00:00:18.730 Hi good evening.

00:00:18.730 --> 00:00:21.320 Can everyone hear me? Sansa.

00:00:21.320 --> 00:00:25.190 Nick blind and can hear me Randy can hear

00:00:25.283 --> 00:00:28.595 me alright so two people can hear me.

00:00:28.600 --> 00:00:30.760 Thank you to everyone for coming.

00:00:30.760 --> 00:00:32.980 I'm Genma, Letourneau, I'm the chief

00:00:32.980 --> 00:00:35.207 of neurosurgical oncology at Yale and

00:00:35.207 --> 00:00:37.259 we're excited to welcome everyone here.

00:00:37.260 --> 00:00:39.787 This is billed as a CME event,

00:00:39.790 --> 00:00:41.234 but there's also patients

00:00:41.234 --> 00:00:42.678 and providers and families.

00:00:42.680 --> 00:00:44.485 Of course that are coming

00:00:44.485 --> 00:00:45.929 in addition to providers,

00:00:45.930 --> 00:00:49.010 so the more the Marier and we're really

00:00:49.010 --> 00:00:51.708 excited for tonight and we look forward

00:00:51.708 --> 00:00:55.067 to doing this more in the future as well.

00:00:55.070 --> 00:00:57.255 I wanted to start by

00:00:57.255 --> 00:00:58.566 acknowledging Susie Barris,

00:00:58.570 --> 00:01:01.636 whose name this this CME event holds.

00:01:01.640 --> 00:01:03.830 She's a dear patient of

00:01:03.830 --> 00:01:06.020 mine as well as Knicks,

00:01:06.020 --> 00:01:07.952 who was a pediatrician.

00:01:07.952 --> 00:01:10.367 Anne was diagnosed with glioblastoma

00:01:10.367 --> 00:01:13.039 two years ago and has done

00:01:13.039 --> 00:01:15.149 incredibly and remarkably well an

00:01:15.233 --> 00:01:17.193 it's her generosity that allows

00:01:17.193 --> 00:01:20.036 us to do these types of events.

00:01:20.036 --> 00:01:22.226 So thank you to Susie.

00:01:22.230 --> 00:01:25.716 So with that we will start.

00:01:25.720 --> 00:01:27.844 What we're going to talk about

NOTE Confidence: 0.88301134

00:01:27.844 --> 00:01:30.491 tonight is really the state of the

NOTE Confidence: 0.88301134

00:01:30.491 --> 00:01:32.807 art treatment of primary brain tumors,

NOTE Confidence: 0.88301134

00:01:32.810 --> 00:01:35.183 and we're going to start with myself

NOTE Confidence: 0.88301134

00:01:35.183 --> 00:01:37.060 talking about the nurse surgical

NOTE Confidence: 0.88301134

00:01:37.060 --> 00:01:39.436 approach to brain tumors and then

NOTE Confidence: 0.88301134

00:01:39.436 --> 00:01:42.141 Doctor Blondin is going to follow me

NOTE Confidence: 0.88301134

00:01:42.141 --> 00:01:43.991 with the Neural Oncology Perspective.

NOTE Confidence: 0.88301134

00:01:44.000 --> 00:01:46.238 Doctor Angie Bindra to follow him.

NOTE Confidence: 0.88301134

00:01:46.240 --> 00:01:47.728 Radiation oncology as well

NOTE Confidence: 0.88301134

00:01:47.728 --> 00:01:49.588 as other types of research.

NOTE Confidence: 0.88301134

00:01:49.590 --> 00:01:51.949 I imagine he will also touch upon

NOTE Confidence: 0.88301134

00:01:51.949 --> 00:01:54.070 and then doctor Antonio Morrow,

NOTE Confidence: 0.88301134

00:01:54.070 --> 00:01:56.170 who will finish it ouf.

NOTE Confidence: 0.88301134

00:01:56.170 --> 00:01:58.384 I was talking about clinical trials

NOTE Confidence: 0.88301134

00:01:58.384 --> 00:02:00.440 and the offerings that we have.

NOTE Confidence: 0.88301134

00:02:00.440 --> 00:02:02.576 We'll take questions at the end.

NOTE Confidence: 0.88301134

00:02:02.580 --> 00:02:05.065 Will also take questions after each talk,

NOTE Confidence: 0.88301134

00:02:05.070 --> 00:02:07.555 seeing how the timing is working out,

NOTE Confidence: 0.88301134

00:02:07.560 --> 00:02:09.696 and then we'll go from there.

NOTE Confidence: 0.88301134

00:02:09.700 --> 00:02:11.490 There should be fairly informal

NOTE Confidence: 0.88301134

00:02:11.490 --> 00:02:13.970 and we hope that you enjoy it.

NOTE Confidence: 0.88301134

00:02:13.970 --> 00:02:16.818 So let me begin by sharing my screen.

NOTE Confidence: 0.8755294

00:02:36.920 --> 00:02:38.370 Does everyone see my screen?

NOTE Confidence: 0.83498186

00:02:41.840 --> 00:02:42.842 Status thumbs up.

NOTE Confidence: 0.83498186

00:02:42.842 --> 00:02:45.180 OK alright I just seen Nick and

NOTE Confidence: 0.83498186

00:02:45.250 --> 00:02:47.497 Ranjeet so I'll go based on them.

NOTE Confidence: 0.83498186

00:02:47.500 --> 00:02:49.396 So if they start to look

NOTE Confidence: 0.83498186

00:02:49.396 --> 00:02:51.160 bored then I'll just start.

NOTE Confidence: 0.83498186

00:02:51.160 --> 00:02:52.492 I'll just stop talking

NOTE Confidence: 0.83498186

00:02:52.492 --> 00:02:54.157 Alright so so again welcome.

NOTE Confidence: 0.83498186

00:02:54.160 --> 00:02:56.449 I'm going to talk about the neurosurgical

NOTE Confidence: 0.83498186

00:02:56.449 --> 00:02:58.159 management of primary brain tumors.

NOTE Confidence: 0.83498186

00:02:58.160 --> 00:03:00.484 As I mentioned, this is our group,

NOTE Confidence: 0.83498186

00:03:00.490 --> 00:03:02.600 our leadership group for the

NOTE Confidence: 0.83498186

00:03:02.600 --> 00:03:04.710 brain tumor center and this

NOTE Confidence: 0.83498186

00:03:04.792 --> 00:03:06.916 was at our most recent retreat

NOTE Confidence: 0.83498186

00:03:06.916 --> 00:03:09.320 from which was a great event.

NOTE Confidence: 0.83498186

00:03:09.320 --> 00:03:10.330 One second.

NOTE Confidence: 0.9480939

00:03:13.890 --> 00:03:18.192 OK. So we are the Premier academic

NOTE Confidence: 0.9480939

00:03:18.192 --> 00:03:19.956 neural oncology in neurosurgical

NOTE Confidence: 0.9480939

00:03:19.956 --> 00:03:21.720 oncology program in Connecticut,

NOTE Confidence: 0.9480939

00:03:21.720 --> 00:03:24.758 and we are fortunate to have the

NOTE Confidence: 0.9480939

00:03:24.758 --> 00:03:27.456 highest volume of cases of brain

NOTE Confidence: 0.9480939

00:03:27.456 --> 00:03:30.494 tumor cases and see the most number

NOTE Confidence: 0.9480939

00:03:30.587 --> 00:03:33.625 of brain tumor patients as such as,

NOTE Confidence: 0.9480939

00:03:33.630 --> 00:03:34.953 especially as neurosurgeons

NOTE Confidence: 0.9480939

00:03:34.953 --> 00:03:36.276 were frequently referred.

NOTE Confidence: 0.9480939

00:03:36.280 --> 00:03:39.060 The more complex neurosurgical oncology

NOTE Confidence: 0.9480939

00:03:39.060 --> 00:03:41.840 cases by other neurosurgeons across

NOTE Confidence: 0.9480939

00:03:41.922 --> 00:03:44.010 the region and beyond with this

NOTE Confidence: 0.9480939

00:03:44.010 --> 00:03:46.969 leads to is the more more key cases.

NOTE Confidence: 0.9480939

00:03:46.970 --> 00:03:49.742 The types of tumors that are in

NOTE Confidence: 0.9480939

00:03:49.742 --> 00:03:51.728 more eloquent brain, for instance,

NOTE Confidence: 0.9480939

00:03:51.728 --> 00:03:53.324 or more functional anatomy

NOTE Confidence: 0.9480939

00:03:53.324 --> 00:03:55.290 that really interests our care.

NOTE Confidence: 0.9480939

00:03:55.290 --> 00:03:58.258 And I'm going to focus my talk tonight

NOTE Confidence: 0.9480939

00:03:58.258 --> 00:04:00.829 on gliomas as well as meningiomas,

NOTE Confidence: 0.9480939

00:04:00.830 --> 00:04:03.115 just thinking that might be

NOTE Confidence: 0.9480939

00:04:03.115 --> 00:04:05.400 most interest to the community.

NOTE Confidence: 0.9480939

00:04:05.400 --> 00:04:07.710 Every tumor that we operate on

NOTE Confidence: 0.9480939

00:04:07.710 --> 00:04:09.250 undergoes whole exome sequencing

NOTE Confidence: 0.9480939

00:04:09.317 --> 00:04:11.447 and then we have a multidisciplinary

NOTE Confidence: 0.9480939

00:04:11.447 --> 00:04:13.540 tumor board where all of us sit.

NOTE Confidence: 0.9480939

00:04:13.540 --> 00:04:16.222 I lead it as well as a precision brain

NOTE Confidence: 0.9480939

00:04:16.222 --> 00:04:18.448 tumor board where we really personalize

NOTE Confidence: 0.9480939

00:04:18.448 --> 00:04:21.330 the care for each and every patient.

NOTE Confidence: 0.8395369

00:04:24.090 --> 00:04:26.322 This was some data that I had presented

NOTE Confidence: 0.8395369

00:04:26.322 --> 00:04:28.793 about our brain tumor center and

NOTE Confidence: 0.8395369

00:04:28.793 --> 00:04:30.641 specifically about the neurosurgery

NOTE Confidence: 0.8395369

00:04:30.641 --> 00:04:32.369 neurosurgical oncology aspect of it.

NOTE Confidence: 0.8395369

00:04:32.370 --> 00:04:34.890 This was pulled from 2017, so actually

NOTE Confidence: 0.8395369

00:04:34.890 --> 00:04:37.410 has increased quite a bit since then,

NOTE Confidence: 0.8395369

00:04:37.410 --> 00:04:40.650 but I wanted to be honest with the numbers,

NOTE Confidence: 0.8395369

00:04:40.650 --> 00:04:42.883 so we have about half the share

NOTE Confidence: 0.8395369

00:04:42.883 --> 00:04:43.840 of neurosurgical oncology

NOTE Confidence: 0.8395369

00:04:43.898 --> 00:04:45.690 discharges throughout the state.

NOTE Confidence: 0.8395369

00:04:45.690 --> 00:04:48.210 I am fortunate to be the busiest

NOTE Confidence: 0.8395369

00:04:48.210 --> 00:04:50.400 brain tumor surgeon, but the other

NOTE Confidence: 0.8395369

00:04:50.400 --> 00:04:52.620 two busiest brain tumor surgeons are.

NOTE Confidence: 0.8395369

00:04:52.620 --> 00:04:56.252 In our center as well, and we run

NOTE Confidence: 0.8395369

00:04:56.252 --> 00:04:58.308 domestic and international programs.

NOTE Confidence: 0.8395369

00:04:58.310 --> 00:05:00.836 This is a typical practice for

NOTE Confidence: 0.8395369

00:05:00.836 --> 00:05:03.390 us in our surgical oncology,

NOTE Confidence: 0.8395369

00:05:03.390 --> 00:05:06.156 and so you can see here,

NOTE Confidence: 0.8395369

00:05:06.160 --> 00:05:08.470 glioblastoma involving the Motor Strip,

NOTE Confidence: 0.8395369

00:05:08.470 --> 00:05:11.704 large CP angle tumors such as epidermoid's.

NOTE Confidence: 0.8395369

00:05:11.710 --> 00:05:14.260 Here are some atypical meningiomas

NOTE Confidence: 0.8395369

00:05:14.260 --> 00:05:17.460 as well as intra ventricular tumors.

NOTE Confidence: 0.8395369

00:05:17.460 --> 00:05:19.861 And again, these are just some more

NOTE Confidence: 0.8395369

00:05:19.861 --> 00:05:22.440 cases that we frequently see again,

NOTE Confidence: 0.8395369

00:05:22.440 --> 00:05:23.968 meningiomas CP angle tumors,

NOTE Confidence: 0.8395369

00:05:23.968 --> 00:05:25.114 large acoustic neuromas,

NOTE Confidence: 0.8395369

00:05:25.120 --> 00:05:26.392 intra ventricular tumors,

NOTE Confidence: 0.8395369

00:05:26.392 --> 00:05:28.936 epidermoid tumors that have been re

NOTE Confidence: 0.8395369

00:05:28.936 --> 00:05:31.247 operated typically in the past as well.

NOTE Confidence: 0.8395369

00:05:31.250 --> 00:05:32.342 So our mission,

NOTE Confidence: 0.8395369

00:05:32.342 --> 00:05:34.890 which is likely similar to all the

NOTE Confidence: 0.8395369

00:05:34.972 --> 00:05:37.378 other providers that are on here,

NOTE Confidence: 0.8395369

00:05:37.380 --> 00:05:39.876 is to improve our patients quantity

NOTE Confidence: 0.8395369

00:05:39.876 --> 00:05:42.738 and quality of life and the way that

NOTE Confidence: 0.8395369

00:05:42.738 --> 00:05:45.970 we try to do that is to provide the

NOTE Confidence: 0.8395369

00:05:45.970 --> 00:05:48.430 most excellent patient care possible.

NOTE Confidence: 0.8395369

00:05:48.430 --> 00:05:50.170 We have advanced techniques and

NOTE Confidence: 0.8395369

00:05:50.170 --> 00:05:52.371 expertise as well as the resources

NOTE Confidence: 0.8395369

00:05:52.371 --> 00:05:54.717 and the infrastructure to do that.

NOTE Confidence: 0.8395369

00:05:54.720 --> 00:05:56.360 Again, as I mentioned,

NOTE Confidence: 0.8395369

00:05:56.360 --> 00:05:58.000 we have a multidisciplinary

NOTE Confidence: 0.8395369

00:05:58.000 --> 00:05:59.884 treatment program and we're always

NOTE Confidence: 0.8395369

00:05:59.884 --> 00:06:01.876 happy and willing to provide that

NOTE Confidence: 0.8395369

00:06:01.876 --> 00:06:03.599 with the community as well.

NOTE Confidence: 0.8395369

00:06:03.600 --> 00:06:06.190 And then we offer our patients support,

NOTE Confidence: 0.8395369

00:06:06.190 --> 00:06:07.986 realizing what a difficult

NOTE Confidence: 0.8395369

00:06:07.986 --> 00:06:10.680 diagnosis of brain tumor can be.

NOTE Confidence: 0.8395369

00:06:10.680 --> 00:06:13.224 So the goals of primary brain tumor surgery.

NOTE Confidence: 0.8395369

00:06:13.230 --> 00:06:13.792 Of course,

NOTE Confidence: 0.8395369

00:06:13.792 --> 00:06:15.478 one is to establish the diagnosis

NOTE Confidence: 0.8395369

00:06:15.478 --> 00:06:17.060 to guide further treatment,

NOTE Confidence: 0.8395369

00:06:17.060 --> 00:06:18.233 recognizing that surgery

NOTE Confidence: 0.8395369

00:06:18.233 --> 00:06:20.188 alone is not the answer.

NOTE Confidence: 0.8395369

00:06:20.190 --> 00:06:22.518 In most tumors, and really we,

NOTE Confidence: 0.8395369

00:06:22.520 --> 00:06:24.596 we aim to Resect as much

NOTE Confidence: 0.8395369

00:06:24.596 --> 00:06:26.790 tumor as safely as possible.

NOTE Confidence: 0.8395369

00:06:26.790 --> 00:06:28.730 There's some exceptions to this,

NOTE Confidence: 0.8395369

00:06:28.730 --> 00:06:29.506 of course.

NOTE Confidence: 0.8395369

00:06:29.506 --> 00:06:30.670 They're very few.

NOTE Confidence: 0.8395369

00:06:30.670 --> 00:06:32.998 This not only helps the patients

NOTE Confidence: 0.8395369

00:06:32.998 --> 00:06:34.550 from a symptomatic standpoint,

NOTE Confidence: 0.8395369

00:06:34.550 --> 00:06:37.286 but really has shown across the board to

NOTE Confidence: 0.8395369

00:06:37.286 --> 00:06:39.746 have overall and progression free survival

NOTE Confidence: 0.8395369

00:06:39.746 --> 00:06:42.302 benefits in various types of tumors.

NOTE Confidence: 0.8395369

00:06:42.310 --> 00:06:44.626 Old tumors, for the most part,

NOTE Confidence: 0.8395369

00:06:44.630 --> 00:06:46.550 especially gliomas in meningiomas

NOTE Confidence: 0.8395369

00:06:46.550 --> 00:06:48.950 which will talk about tonight.

NOTE Confidence: 0.8395369

00:06:48.950 --> 00:06:49.339 And,

NOTE Confidence: 0.8395369

00:06:49.339 --> 00:06:50.117 of course,

NOTE Confidence: 0.8395369

00:06:50.117 --> 00:06:52.840 that issue that we obtain from from

NOTE Confidence: 0.8395369

00:06:52.919 --> 00:06:55.895 the surgeries can help guide more

NOTE Confidence: 0.8395369

00:06:55.895 --> 00:06:57.879 personalized treatment as well.

NOTE Confidence: 0.8395369

00:06:57.880 --> 00:07:00.176 So what I like to say is,

NOTE Confidence: 0.8395369

00:07:00.180 --> 00:07:02.147 is we have ways to make what

NOTE Confidence: 0.8395369

00:07:02.147 --> 00:07:03.780 others deem as inoperable,

NOTE Confidence: 0.8395369

00:07:03.780 --> 00:07:04.500 tumors operable,

NOTE Confidence: 0.8395369

00:07:04.500 --> 00:07:07.020 and so there are some reasons and

NOTE Confidence: 0.8395369

00:07:07.020 --> 00:07:09.027 tricks that allow us to do that.

NOTE Confidence: 0.8395369

00:07:09.030 --> 00:07:11.654 So for one we have sub specialized expertise,

NOTE Confidence: 0.8395369

00:07:11.660 --> 00:07:13.935 and so Veronica Chang and Joe Pete

NOTE Confidence: 0.8395369

00:07:13.935 --> 00:07:16.579 Meyer on there in that picture with me.

NOTE Confidence: 0.8395369

00:07:16.580 --> 00:07:18.603 All we do is brain tumor surgery

NOTE Confidence: 0.8395369

00:07:18.603 --> 00:07:20.510 in our brain tumor surgeons.

NOTE Confidence: 0.8395369

00:07:20.510 --> 00:07:22.806 All they do is brain tumor surgery.

NOTE Confidence: 0.8395369

00:07:22.810 --> 00:07:24.748 And in fact we're even further

NOTE Confidence: 0.8395369

00:07:24.748 --> 00:07:26.040 subspecialized into primary brain

NOTE Confidence: 0.8395369

00:07:26.091 --> 00:07:28.059 tumors and metastatic brain tumors etc.

NOTE Confidence: 0.8395369

00:07:28.060 --> 00:07:28.728 And so.

NOTE Confidence: 0.8395369

00:07:28.728 --> 00:07:31.066 There really is something to be said

NOTE Confidence: 0.8395369

00:07:31.066 --> 00:07:33.591 for neurosurgeons to do the same

NOTE Confidence: 0.8395369

00:07:33.591 --> 00:07:35.711 type of subspecialty surgery day

NOTE Confidence: 0.89643103

00:07:35.786 --> 00:07:36.830 in and day out.

NOTE Confidence: 0.89643103

00:07:36.830 --> 00:07:38.795 We similarly have advanced imaging

NOTE Confidence: 0.89643103

00:07:38.795 --> 00:07:40.366 capabilities, so Rob Fulbright,

NOTE Confidence: 0.89643103

00:07:40.366 --> 00:07:43.010 for instance, are one of our amazing

NOTE Confidence: 0.89643103

00:07:43.010 --> 00:07:45.480 new radiologist as well as others.

NOTE Confidence: 0.89643103

00:07:45.480 --> 00:07:47.490 Allow us to understand the function

NOTE Confidence: 0.89643103

00:07:47.490 --> 00:07:50.298 of the brain and so functional MRI's

NOTE Confidence: 0.89643103

00:07:50.298 --> 00:07:52.623 and other more sophisticated imaging

NOTE Confidence: 0.89643103

00:07:52.623 --> 00:07:54.910 techniques that guide us in surgery.

NOTE Confidence: 0.89643103

00:07:54.910 --> 00:07:57.381 We use GPS system which is standard

NOTE Confidence: 0.89643103

00:07:57.381 --> 00:08:00.290 on all of our cases and then also

NOTE Confidence: 0.89643103

00:08:00.290 --> 00:08:02.623 in addition to that I typically

NOTE Confidence: 0.89643103

00:08:02.623 --> 00:08:05.515 use the ultrasound in every case.

13

NOTE Confidence: 0.89643103

00:08:05.520 --> 00:08:07.926 Not sure if my mouse is.

NOTE Confidence: 0.89643103

00:08:07.930 --> 00:08:09.139 Coming up probably.

NOTE Confidence: 0.89643103

00:08:09.139 --> 00:08:11.960 Ranjeet says yes but that big white

NOTE Confidence: 0.89643103

00:08:12.041 --> 00:08:14.456 thing in the middle is the brain

NOTE Confidence: 0.89643103

00:08:14.456 --> 00:08:17.062 tumor and then the little black thing

NOTE Confidence: 0.89643103

00:08:17.062 --> 00:08:19.706 in the middle is the carotid artery.

NOTE Confidence: 0.89643103

00:08:19.706 --> 00:08:21.290 So understanding the relationship

NOTE Confidence: 0.89643103

00:08:21.290 --> 00:08:23.990 between the two is of course important

NOTE Confidence: 0.89643103

00:08:23.990 --> 00:08:26.279 but also allows me to know how

NOTE Confidence: 0.89643103

00:08:26.279 --> 00:08:28.180 much tumor I have removed during

NOTE Confidence: 0.89643103

00:08:28.180 --> 00:08:30.728 the surgery and so I can always go

NOTE Confidence: 0.89643103

00:08:30.728 --> 00:08:33.150 back and remove more if it's safe.

NOTE Confidence: 0.89643103

00:08:33.150 --> 00:08:35.448 The gold standard to really maximizing

NOTE Confidence: 0.89643103

00:08:35.448 --> 00:08:37.941 the extent of resection is the Inter

NOTE Confidence: 0.89643103

00:08:37.941 --> 00:08:40.020 operative MRI and so we're the only

NOTE Confidence: 0.89643103

00:08:40.083 --> 00:08:42.249 center in the state of Connecticut.

NOTE Confidence: 0.89643103

00:08:42.250 --> 00:08:44.536 It has a three Tesla MRI or any MRI

NOTE Confidence: 0.89643103

00:08:44.536 --> 00:08:46.128 actually in our operating room,

NOTE Confidence: 0.89643103

00:08:46.130 --> 00:08:47.999 which you can see we're standing in

NOTE Confidence: 0.89643103

00:08:47.999 --> 00:08:50.118 front of and I'll show you an example

NOTE Confidence: 0.89643103

00:08:50.118 --> 00:08:52.331 of that later and it really does make

NOTE Confidence: 0.89643103

00:08:52.331 --> 00:08:54.438 a difference in terms of the outcomes

NOTE Confidence: 0.89643103

00:08:54.440 --> 00:08:57.086 and how much were able to remove.

NOTE Confidence: 0.89643103

00:08:57.090 --> 00:08:59.197 Going back to our sub specialized expertise

NOTE Confidence: 0.89643103

00:08:59.197 --> 00:09:01.411 were able to perform functional mapping

NOTE Confidence: 0.89643103

00:09:01.411 --> 00:09:03.087 and more sophisticated microsurgery

NOTE Confidence: 0.89643103

00:09:03.087 --> 00:09:05.260 which relies on neurophysiology.

NOTE Confidence: 0.89643103

00:09:05.260 --> 00:09:08.364 It's standard on nearly all of our cases,

NOTE Confidence: 0.89643103

00:09:08.370 --> 00:09:10.404 an really the gold standard to

NOTE Confidence: 0.89643103

00:09:10.404 --> 00:09:12.646 that also is awake craniotomy that

NOTE Confidence: 0.89643103

00:09:12.646 --> 00:09:15.094 allows us to operate in functional

NOTE Confidence: 0.89643103

00:09:15.094 --> 00:09:17.610 parts of the brain that others

NOTE Confidence: 0.89643103

00:09:17.610 --> 00:09:19.645 would would deem inoperable in.

NOTE Confidence: 0.89643103

00:09:19.650 --> 00:09:21.744 Just rely on a biopsy rather

NOTE Confidence: 0.89643103

00:09:21.744 --> 00:09:23.930 than try to maximize reception.

NOTE Confidence: 0.8811639

00:09:27.760 --> 00:09:30.950 This was a slide that was given to me by

NOTE Confidence: 0.8811639

00:09:31.033 --> 00:09:33.714 the chair of MGH, which I really like.

NOTE Confidence: 0.8811639

00:09:33.714 --> 00:09:36.031 It shows that the more specialized the

NOTE Confidence: 0.8811639

00:09:36.031 --> 00:09:38.348 surgeon is in cranial surgery and brain

NOTE Confidence: 0.8811639

00:09:38.348 --> 00:09:40.340 surgery, the better the patients do,

NOTE Confidence: 0.8811639

00:09:40.340 --> 00:09:42.182 and I think that's even more

NOTE Confidence: 0.8811639

00:09:42.182 --> 00:09:43.980 true for brain tumor surgery,

NOTE Confidence: 0.8811639

00:09:43.980 --> 00:09:45.545 meaning that to have specialists

NOTE Confidence: 0.8811639

00:09:45.545 --> 00:09:47.620 who only do brain tumor surgery,

NOTE Confidence: 0.8811639

00:09:47.620 --> 00:09:49.606 that outcomes are that much better.

NOTE Confidence: 0.8811639

00:09:49.610 --> 00:09:51.265 And that's again what we're

NOTE Confidence: 0.8811639

16

00:09:51.265 --> 00:09:52.920 what we're most interested in.

NOTE Confidence: 0.8811639

00:09:52.920 --> 00:09:54.204 And then, of course,

NOTE Confidence: 0.8811639

00:09:54.204 --> 00:09:56.640 recognizing that it doesn't end with surgery.

NOTE Confidence: 0.8811639

00:09:56.640 --> 00:09:59.615 And relying on our colleagues in neurology,

NOTE Confidence: 0.8811639

00:09:59.620 --> 00:10:00.049 radiation?

NOTE Confidence: 0.8811639

00:10:00.049 --> 00:10:02.623 Oncology and then novel therapies as

NOTE Confidence: 0.8811639

00:10:02.623 --> 00:10:05.567 well to really push the field forward.

NOTE Confidence: 0.8811639

00:10:05.570 --> 00:10:09.044 So I wanted to use a few case illustrations

NOTE Confidence: 0.8811639

00:10:09.044 --> 00:10:11.834 just to showcase what we're able to

NOTE Confidence: 0.8811639

00:10:11.834 --> 00:10:15.335 do and also drive home the point of

NOTE Confidence: 0.8811639

00:10:15.335 --> 00:10:17.670 how important the maximization of

NOTE Confidence: 0.8811639

00:10:17.670 --> 00:10:19.896 extent of resection is maximizing.

NOTE Confidence: 0.8811639

00:10:19.896 --> 00:10:23.017 So this is a patient actually that

NOTE Confidence: 0.8811639

00:10:23.017 --> 00:10:25.824 Doctor Blondin referred to me and we

NOTE Confidence: 0.8811639

00:10:25.824 --> 00:10:28.681 see things like this all too common

NOTE Confidence: 0.8811639

00:10:28.681 --> 00:10:30.263 in our practice, unfortunately.

NOTE Confidence: 0.8811639

00:10:30.263 --> 00:10:33.014 So this was a patient who presented

NOTE Confidence: 0.8811639

00:10:33.014 --> 00:10:36.389 with a phasia and you can see at the

NOTE Confidence: 0.8811639

00:10:36.389 --> 00:10:38.554 outside hospital. This was his scan.

NOTE Confidence: 0.8811639

00:10:38.554 --> 00:10:39.637 In December 2018,

NOTE Confidence: 0.8811639

00:10:39.640 --> 00:10:41.440 he underwent craniotomy for tumor.

NOTE Confidence: 0.8811639

00:10:41.440 --> 00:10:43.606 This is his post op CIT.

NOTE Confidence: 0.8811639

00:10:43.610 --> 00:10:46.122 And then this is his post op MRI

NOTE Confidence: 0.8811639

00:10:46.122 --> 00:10:48.715 done in January and you don't have

NOTE Confidence: 0.8811639

00:10:48.715 --> 00:10:51.822 to be a brain surgeon to see that

NOTE Confidence: 0.8811639

00:10:51.822 --> 00:10:53.346 the tumor that's here,

NOTE Confidence: 0.8811639

00:10:53.350 --> 00:10:55.856 which is a glioblastoma which is in

NOTE Confidence: 0.8811639

00:10:55.856 --> 00:10:58.729 the left side of his brain which is

NOTE Confidence: 0.8811639

00:10:58.729 --> 00:11:01.010 near the language is very similar

NOTE Confidence: 0.8811639

00:11:01.010 --> 00:11:03.450 in appearance to before surgery.

NOTE Confidence: 0.8811639

00:11:03.450 --> 00:11:08.360 And again we see this, unfortunately because.

NOTE Confidence: 0.8811639

00:11:08.360 --> 00:11:10.105 Other people don't have the

NOTE Confidence: 0.8811639

00:11:10.105 --> 00:11:11.850 capabilities that that we might,

NOTE Confidence: 0.8811639

00:11:11.850 --> 00:11:14.286 so he was kindly referred to me.

NOTE Confidence: 0.8811639

00:11:14.290 --> 00:11:16.348 We ended up getting that functional

NOTE Confidence: 0.8811639

00:11:16.348 --> 00:11:18.830 MRI image Ng that I had mentioned,

NOTE Confidence: 0.8811639

00:11:18.830 --> 00:11:21.248 which allows us to understand the

NOTE Confidence: 0.8811639

00:11:21.248 --> 00:11:23.660 important function of the brain and

NOTE Confidence: 0.8811639

00:11:23.660 --> 00:11:26.194 I ended up keeping him awake during

NOTE Confidence: 0.8811639

00:11:26.194 --> 00:11:28.493 surgery and was able to remove all of

NOTE Confidence: 0.8811639

00:11:28.493 --> 00:11:31.388 it and he was able to go on and and be

NOTE Confidence: 0.8811639

00:11:31.388 --> 00:11:33.734 treated with ajibon therapy and his

NOTE Confidence: 0.8811639

00:11:33.734 --> 00:11:35.929 aphasia improved even more importantly.

NOTE Confidence: 0.8811639

00:11:35.930 --> 00:11:38.648 So again being able to do.

NOTE Confidence: 0.8811639

00:11:38.650 --> 00:11:40.600 These types of things awake,

NOTE Confidence: 0.8811639

00:11:40.600 --> 00:11:42.550 craniotomy and other more sophisticated

NOTE Confidence: 0.8811639

00:11:42.550 --> 00:11:44.500 surgery can really help patients.

NOTE Confidence: 0.8652082

00:11:46.720 --> 00:11:49.590 This is just a slide about are

NOTE Confidence: 0.8652082

00:11:49.590 --> 00:11:51.634 awake craniotomy protocol and so

NOTE Confidence: 0.8652082

00:11:51.634 --> 00:11:53.464 some patients get nervous about

NOTE Confidence: 0.8652082

00:11:53.464 --> 00:11:55.889 the idea of awake craniotomy.

NOTE Confidence: 0.8652082

00:11:55.890 --> 00:11:58.788 And actually, it's one of the safest

NOTE Confidence: 0.8652082

00:11:58.788 --> 00:12:01.352 procedures that we perform an incredibly

NOTE Confidence: 0.8652082

00:12:01.352 --> 00:12:04.737 well tolerated and I have a video to

NOTE Confidence: 0.8652082

00:12:04.737 --> 00:12:07.993 share about that we rely on our great

NOTE Confidence: 0.8652082

00:12:07.993 --> 00:12:09.651 collaboration with Neural Anesthesia

NOTE Confidence: 0.8652082

00:12:09.651 --> 00:12:12.153 and so that's doctor Shilpa Rao.

NOTE Confidence: 0.8652082

00:12:12.160 --> 00:12:14.530 She's at neuro anesthesiologist who really

NOTE Confidence: 0.8652082

00:12:14.530 --> 00:12:17.670 make sure that the patient is comfortable.

NOTE Confidence: 0.8652082

00:12:17.670 --> 00:12:19.410 And can tolerate being awake.

NOTE Confidence: 0.8652082

00:12:19.410 --> 00:12:21.558 And we reserve this when we're

NOTE Confidence: 0.8652082

00:12:21.558 --> 00:12:24.090 operating in areas such as these with

NOTE Confidence: 0.8652082

20

00:12:24.090 --> 00:12:26.154 tumors that are near the language

NOTE Confidence: 0.8652082

00:12:26.154 --> 00:12:28.427 area or even near the motor area.

NOTE Confidence: 0.8652082

00:12:28.430 --> 00:12:29.122 And again,

NOTE Confidence: 0.8652082

00:12:29.122 --> 00:12:31.544 this allows us to maintain patients function.

NOTE Confidence: 0.8652082

00:12:31.550 --> 00:12:33.631 So the following is about a

NOTE Confidence: 0.8652082

00:12:33.631 --> 00:12:35.366 four minute video or so.

NOTE Confidence: 0.8652082

00:12:35.370 --> 00:12:37.100 I hope you don't mind,

NOTE Confidence: 0.8652082

00:12:37.100 --> 00:12:40.131 but I think it it really showcases

NOTE Confidence: 0.8652082

00:12:40.131 --> 00:12:43.259 nicely in terms of these procedures.

NOTE Confidence: 0.8652082

00:12:43.260 --> 00:12:43.550 To

NOTE Confidence: 0.8614051

00:12:43.550 --> 00:12:45.010 a Fox 61 exclusive material

NOTE Confidence: 0.8614051

00:12:45.010 --> 00:12:46.178 scenario when undergoing surgery.

NOTE Confidence: 0.8614051

00:12:46.180 --> 00:12:48.228 Waking up in the middle of the

NOTE Confidence: 0.8614051

00:12:48.228 --> 00:12:49.980 procedure and knowing what's going on.

NOTE Confidence: 0.8614051

00:12:49.980 --> 00:12:52.020 But in some cases that can be a

NOTE Confidence: 0.8614051

00:12:52.020 --> 00:12:54.059 life saver like savor an necessary.

NOTE Confidence: 0.8614051

00:12:54.060 --> 00:12:56.415 We're going to explain that in a moment.

NOTE Confidence: 0.8614051

00:12:56.415 --> 00:12:58.855 But first we do want to introduce you

NOTE Confidence: 0.8614051

00:12:58.855 --> 00:13:01.513 to a man named Andy Andy is a husband

NOTE Confidence: 0.8614051

00:13:01.513 --> 00:13:03.698 and father of two kids and a nurse.

NOTE Confidence: 0.8614051

00:13:03.700 --> 00:13:05.160 Another interesting fact about him,

NOTE Confidence: 0.8614051

00:13:05.160 --> 00:13:06.906 he's also a professionally trained singer.

NOTE Confidence: 0.8614051

00:13:06.910 --> 00:13:08.370 He's even performed with his

NOTE Confidence: 0.8614051

00:13:08.370 --> 00:13:09.830 church choir at Carnegie Hall,

NOTE Confidence: 0.8614051

00:13:09.830 --> 00:13:12.848 but Andy felt his entire life come to a halt.

NOTE Confidence: 0.8614051

00:13:12.850 --> 00:13:15.090 When he was diagnosed with brain cancer,

NOTE Confidence: 0.8614051

00:13:15.090 --> 00:13:17.010 he needed surgery to remove as

NOTE Confidence: 0.8614051

00:13:17.010 --> 00:13:18.930 much of a tumor as possible.

NOTE Confidence: 0.8614051

00:13:18.930 --> 00:13:21.170 That tumor in the part of his

NOTE Confidence: 0.8614051

00:13:21.170 --> 00:13:22.450 brain that controls speech.

NOTE Confidence: 0.8614051

00:13:22.450 --> 00:13:23.410 And, yes, singing.

NOTE Confidence: 0.8614051

00:13:23.410 --> 00:13:25.650 That's where a special surgery comes in.

00:13:25.650 --> 00:13:26.655 Surgeons at Yale,

00:13:26.655 --> 00:13:28.330 New Haven Smilow Cancer Hospital

00:13:28.330 --> 00:13:29.890 have perfected a procedure called

00:13:29.890 --> 00:13:30.770 an awake craniotomy.

00:13:30.770 --> 00:13:32.554 They invited us into the operating

00:13:32.554 --> 00:13:35.050 room and we did not hesitate to see

00:13:35.050 --> 00:13:36.850 this incredible procedure first hand.

00:13:40.560 --> 00:13:42.546 In an operating room at Yale,

00:13:42.550 --> 00:13:44.959 New Haven Hospital.

00:13:44.960 --> 00:13:46.985 Doctors are working to remove

00:13:46.985 --> 00:13:49.710 a tumor from the brain of a

00:13:49.710 --> 00:13:51.576 31 year old man named Andy.

00:13:51.580 --> 00:13:53.368 He is a singer, yeah,

00:13:53.368 --> 00:13:55.741 a husband and father of two or

00:13:55.741 --> 00:13:58.210 most surgeries waking up in the

NOTE Confidence: 0.90348107

00:13:58.210 --> 00:14:00.048 middle of the operation would

NOTE Confidence: 0.87974614

00:14:00.050 --> 00:14:03.994 be a disaster. So he is asleep

NOTE Confidence: 0.87974614

00:14:03.994 --> 00:14:05.398 during the initial approach.

NOTE Confidence: 0.7949359

00:14:06.960 --> 00:14:08.088 Sure, Andy and then

NOTE Confidence: 0.7949359

00:14:08.090 --> 00:14:09.218 we wake him up.

NOTE Confidence: 0.8361531

00:14:10.790 --> 00:14:12.250 Any Sacile surgeons have

NOTE Confidence: 0.8361531

00:14:12.250 --> 00:14:14.805 drilled through his skull and have already

NOTE Confidence: 0.8361531

00:14:14.805 --> 00:14:17.730 begun to remove part of a tumor located

NOTE Confidence: 0.8361531

00:14:17.730 --> 00:14:21.269 on the left side of his temporal lobe.

NOTE Confidence: 0.8361531

00:14:21.269 --> 00:14:24.134 The area which controls language.

NOTE Confidence: 0.8361531

00:14:24.140 --> 00:14:26.737 Medical staff puts a microphone on him.

NOTE Confidence: 0.8361531

00:14:26.740 --> 00:14:28.592 It's not for our cameras,

NOTE Confidence: 0.8361531

00:14:28.592 --> 00:14:30.447 it's so the entire room,

NOTE Confidence: 0.8361531

00:14:30.450 --> 00:14:32.438 including the operating surgeon,

NOTE Confidence: 0.8361531

00:14:32.438 --> 00:14:35.850 can hear what Andy has to say.

NOTE Confidence: 0.8361531

00:14:35.850 --> 00:14:37.525 She won, the procedure is

NOTE Confidence: 0.8361531

00:14:37.525 --> 00:14:38.874 called an awake craniotomy.

NOTE Confidence: 0.8361531

00:14:38.874 --> 00:14:40.220 You have a headache.

NOTE Confidence: 0.8361531

00:14:40.220 --> 00:14:42.572 I was telling you earlier I I

NOTE Confidence: 0.8361531

00:14:42.572 --> 00:14:44.884 don't know if it's from the brain

NOTE Confidence: 0.8361531

00:14:44.884 --> 00:14:47.278 surgery or the fact that I haven't

NOTE Confidence: 0.8361531

00:14:47.278 --> 00:14:49.630 had a Cup of coffee this morning.

NOTE Confidence: 0.8361531

00:14:49.630 --> 00:14:50.324 Nuro physiologist,

NOTE Confidence: 0.8361531

00:14:50.324 --> 00:14:51.712 Brooke Callahan sits next

NOTE Confidence: 0.8361531

00:14:51.712 --> 00:14:53.660 to him and begins her work.

NOTE Confidence: 0.8361531

00:14:53.660 --> 00:14:56.268 I am going to say it's sentence and

NOTE Confidence: 0.8361531

00:14:56.268 --> 00:14:59.029 I want you to repeat it after me.

NOTE Confidence: 0.8361531

00:14:59.030 --> 00:15:00.710 The seashore smells like salt.

NOTE Confidence: 0.8361531

00:15:00.710 --> 00:15:02.390 The seashore smells like salt.

NOTE Confidence: 0.8361531

00:15:02.390 --> 00:15:04.072 Their interaction can be heard

NOTE Confidence: 0.8361531

00:15:04.072 --> 00:15:06.220 on a speaker throughout the room.

NOTE Confidence: 0.8361531

00:15:06.220 --> 00:15:08.100 Neurosurgeon Doctor Jennifer

NOTE Confidence: 0.8361531

00:15:08.100 --> 00:15:11.684 Moliterno has mastered multi

NOTE Confidence: 0.8361531

00:15:11.684 --> 00:15:13.036 tasking operating and listening.

NOTE Confidence: 0.8361531

00:15:13.040 --> 00:15:13.391 Yeah,

NOTE Confidence: 0.8361531

00:15:13.391 --> 00:15:15.146 he's doing great Doctor Moliterno

NOTE Confidence: 0.8361531

00:15:15.146 --> 00:15:16.936 and her team work diligently

NOTE Confidence: 0.8361531

00:15:16.936 --> 00:15:19.148 to remove as much of the tumor

NOTE Confidence: 0.84751046

00:15:19.150 --> 00:15:21.854 as possible. What she can't see are critical

NOTE Confidence: 0.84751046

00:15:21.860 --> 00:15:22.874 microscopic language fibers

NOTE Confidence: 0.84751046

00:15:22.874 --> 00:15:24.902 which are splayed over the tumor.

NOTE Confidence: 0.84751046

00:15:24.910 --> 00:15:27.409 The best way to try to remove

NOTE Confidence: 0.84751046

00:15:27.409 --> 00:15:29.707 as much tumor and preserve his

NOTE Confidence: 0.84751046

00:15:29.707 --> 00:15:31.688 language is to do it with him.

NOTE Confidence: 0.84751046

00:15:31.690 --> 00:15:34.056 Oh it get too close to those

NOTE Confidence: 0.84751046

00:15:34.056 --> 00:15:35.757 critical fibers. You'll know it.

NOTE Confidence: 0.84751046

00:15:35.757 --> 00:15:38.130 What do you do in a chair?

NOTE Confidence: 0.8460486

00:15:41.010 --> 00:15:43.050 So here he loses his speech.

NOTE Confidence: 0.87207437

00:15:45.170 --> 00:15:47.020 Yeah, little bit of confusion, so

NOTE Confidence: 0.87207437

00:15:47.020 --> 00:15:50.407 that's a great way to me to tell me to stop.

NOTE Confidence: 0.87207437

00:15:50.407 --> 00:15:52.254 And so even though there might

NOTE Confidence: 0.87207437

00:15:52.254 --> 00:15:54.410 be a little bit of tumor there,

NOTE Confidence: 0.87207437

00:15:54.410 --> 00:15:56.378 the risk and benefit of removing

NOTE Confidence: 0.87207437

00:15:56.378 --> 00:15:58.518 that tumor and having him not speak

NOTE Confidence: 0.87207437

00:15:58.518 --> 00:16:00.876 for the rest of his life tells you

NOTE Confidence: 0.87207437

00:16:00.876 --> 00:16:02.724 exactly what the right decision is.

NOTE Confidence: 0.87207437

00:16:02.730 --> 00:16:05.810 If he was asleep, I would have had no idea.

NOTE Confidence: 0.87207437

00:16:05.810 --> 00:16:06.728 As Doctor Moliterno

NOTE Confidence: 0.87207437

00:16:06.730 --> 00:16:07.962 continues operating in a

NOTE Confidence: 0.87207437

00:16:07.962 --> 00:16:09.498 safer spot, and he surprises

NOTE Confidence: 0.87207437

00:16:09.500 --> 00:16:10.728 us when this happens.

NOTE Confidence: 0.82617503

00:16:16.980 --> 00:16:19.864 He does in the middle of surgery.

NOTE Confidence: 0.82617503

00:16:19.870 --> 00:16:21.940 Andy, a classically trained singer,

NOTE Confidence: 0.82617503

00:16:21.940 --> 00:16:25.620 shares his talent. Again.

NOTE Confidence: 0.866559

00:16:27.670 --> 00:16:29.308 2 1/2 hours into the procedure,

NOTE Confidence: 0.866559

00:16:29.308 --> 00:16:30.130 doctor Moliterno decides

NOTE Confidence: 0.866559

00:16:30.130 --> 00:16:31.490 it's time to wrap up.

NOTE Confidence: 0.866559

00:16:31.490 --> 00:16:33.128 The surgeons are done with the

NOTE Confidence: 0.866559

00:16:33.128 --> 00:16:34.498 first part of the surgery.

NOTE Confidence: 0.866559

00:16:34.500 --> 00:16:36.258 So what's happening now is they're

NOTE Confidence: 0.866559

00:16:36.258 --> 00:16:38.040 bringing in an MRI machine and

NOTE Confidence: 0.866559

00:16:38.040 --> 00:16:39.972 they're going to look at the work

NOTE Confidence: 0.866559

00:16:39.972 --> 00:16:41.976 that they did and see how much of

NOTE Confidence: 0.866559

00:16:41.976 --> 00:16:43.778 the tumor they were able to remove.

NOTE Confidence: 0.8392462

00:16:45.950 --> 00:16:48.565 We go into another room and are

NOTE Confidence: 0.8392462

00:16:48.565 --> 00:16:50.809 able to sit with Doctor Moliterno

NOTE Confidence: 0.8392462

00:16:50.809 --> 00:16:52.674 as she analyzes her work.

NOTE Confidence: 0.8392462

00:16:52.680 --> 00:16:55.664 The before here is the tumor and after.

NOTE Confidence: 0.8207915

00:16:58.810 --> 00:17:01.084 You don't have to go back

NOTE Confidence: 0.8207915

00:17:01.084 --> 00:17:02.600 in and feel satisfied.

NOTE Confidence: 0.8207915

00:17:02.600 --> 00:17:05.547 Him being awake allowed us to get that

NOTE Confidence: 0.8207915

00:17:05.547 --> 00:17:07.990 outcome and preserve his function.

NOTE Confidence: 0.8207915

00:17:07.990 --> 00:17:10.478 Now Andy was back home with his

NOTE Confidence: 0.8207915

00:17:10.478 --> 00:17:12.250 family two days after surgery,

NOTE Confidence: 0.8207915

00:17:12.250 --> 00:17:13.890 five days after the surgery,

NOTE Confidence: 0.8207915

00:17:13.890 --> 00:17:16.824 he was able to sing at his son's baptism.

NOTE Confidence: 0.8207915

00:17:16.830 --> 00:17:18.660 He's also saying again with his

NOTE Confidence: 0.8207915

00:17:18.660 --> 00:17:20.759 church choir and the Yale Camarada,

NOTE Confidence: 0.8207915

00:17:20.760 --> 00:17:22.390 which is a professional choir,

NOTE Confidence: 0.8207915

00:17:22.390 --> 00:17:24.784 just a couple of weeks ago and he is

NOTE Confidence: 0.8207915

00:17:24.784 --> 00:17:26.640 undergoing chemotherapy and radiation.

NOTE Confidence: 0.8207915

00:17:26.640 --> 00:17:28.929 But he does say he's feeling good

NOTE Confidence: 0.8207915

00:17:28.929 --> 00:17:31.218 and of course, warm wishes to him.

NOTE Confidence: 0.8207915

00:17:31.218 --> 00:17:33.180 He is just a great guy

NOTE Confidence: 0.88860124

00:17:33.180 --> 00:17:35.214 and so that is exactly the

NOTE Confidence: 0.88860124

00:17:35.214 --> 00:17:37.110 reason we do what we do.

NOTE Confidence: 0.8951285

00:17:40.050 --> 00:17:43.130 This is another example of how we don't

NOTE Confidence: 0.8951285

00:17:43.130 --> 00:17:45.549 necessarily need to keep patients awake,

NOTE Confidence: 0.8951285

00:17:45.550 --> 00:17:47.908 but they do benefit from being

NOTE Confidence: 0.8951285

00:17:47.908 --> 00:17:49.480 more aggressive with surgery,

NOTE Confidence: 0.8951285

00:17:49.480 --> 00:17:53.323 so this was a patient back in 2013 who

NOTE Confidence: 0.8951285

00:17:53.323 --> 00:17:56.963 underwent a biopsy because it was felt that

NOTE Confidence: 0.8951285

00:17:56.963 --> 00:18:00.798 the tumor that's here deep within the brain.

NOTE Confidence: 0.8951285

00:18:00.800 --> 00:18:02.580 Was too dangerous to remove,

NOTE Confidence: 0.8951285

00:18:02.580 --> 00:18:04.350 so he underwent a biopsy.

NOTE Confidence: 0.8951285

00:18:04.350 --> 00:18:07.246 Came back as a glioblastoma he was referred

NOTE Confidence: 0.8951285

00:18:07.246 --> 00:18:10.390 then to me by the Oncologist in the area,

NOTE Confidence: 0.8951285

00:18:10.390 --> 00:18:13.576 and I felt that I could remove it safely.

NOTE Confidence: 0.8951285

00:18:13.580 --> 00:18:16.420 And so I ended up doing an enterprise.

NOTE Confidence: 0.8951285

00:18:16.420 --> 00:18:18.905 All socal approach and remove the tumor.

NOTE Confidence: 0.8951285

00:18:18.910 --> 00:18:21.462 Here's a good example of how even for

NOTE Confidence: 0.8951285

00:18:21.462 --> 00:18:24.228 a brain tumor surgeon such as myself,

NOTE Confidence: 0.8951285

00:18:24.230 --> 00:18:26.360 this is our intra operative MRI.

NOTE Confidence: 0.8951285

00:18:26.360 --> 00:18:29.336 This is the intra operative scan and you

NOTE Confidence: 0.8951285

00:18:29.336 --> 00:18:32.870 can see I left a little bit of tumor there.

NOTE Confidence: 0.8951285

00:18:32.870 --> 00:18:35.096 And so that's the benefit of

NOTE Confidence: 0.8951285

00:18:35.096 --> 00:18:36.920 having that Inter operative MRI,

NOTE Confidence: 0.8951285

00:18:36.920 --> 00:18:39.000 because sometimes a little bit

NOTE Confidence: 0.8951285

00:18:39.000 --> 00:18:41.080 of tumor gets tucked underneath

NOTE Confidence: 0.8951285

00:18:41.154 --> 00:18:43.170 the brain and you can miss it.

NOTE Confidence: 0.8951285

00:18:43.170 --> 00:18:45.010 Even I can miss it.

NOTE Confidence: 0.8951285

00:18:45.010 --> 00:18:47.482 So I went back and ended up getting

NOTE Confidence: 0.8951285

00:18:47.482 --> 00:18:49.763 a nice gross total resection on

NOTE Confidence: 0.8951285

00:18:49.763 --> 00:18:52.605 him in that same setting with that

NOTE Confidence: 0.8951285

00:18:52.605 --> 00:18:55.279 MRI of course it came back as

NOTE Confidence: 0.8951285

00:18:55.279 --> 00:18:57.522 glioblastoma with a poor profile an

NOTE Confidence: 0.8951285

00:18:57.522 --> 00:18:58.994 he remained neurologically intact.

NOTE Confidence: 0.8951285

00:18:59.000 --> 00:19:01.160 He went on to undergo stupid

NOTE Confidence: 0.8951285

00:19:01.160 --> 00:19:02.600 standard treatment with Joachim

NOTE Confidence: 0.8951285

00:19:02.660 --> 00:19:04.520 bearing as his neuron cologist.

NOTE Confidence: 0.8951285

00:19:04.520 --> 00:19:06.385 He enrolled on a clinical

NOTE Confidence: 0.8951285

00:19:06.385 --> 00:19:07.877 trial of doctor binge.

NOTE Confidence: 0.8951285

00:19:07.880 --> 00:19:10.196 Chris and then switch to another

NOTE Confidence: 0.8951285

00:19:10.196 --> 00:19:12.761 clinical trial over the years and

NOTE Confidence: 0.8951285

00:19:12.761 --> 00:19:15.136 then ultimately was continued on

NOTE Confidence: 0.8951285

00:19:15.136 --> 00:19:17.878 bevacizumab and progressed about 3 1/2

NOTE Confidence: 0.8951285

00:19:17.878 --> 00:19:19.943 years following his initial surgery,

NOTE Confidence: 0.8951285

00:19:19.950 --> 00:19:23.373 and I'm sure in she will talk

NOTE Confidence: 0.8951285

00:19:23.373 --> 00:19:25.730 more about his trials.

NOTE Confidence: 0.8951285

00:19:25.730 --> 00:19:27.350 This was his recurrence here,

NOTE Confidence: 0.8951285

00:19:27.350 --> 00:19:29.604 so he was referred back to me.

NOTE Confidence: 0.8951285

00:19:29.610 --> 00:19:32.011 This is 2017 for the initial surgery

NOTE Confidence: 0.8951285

00:19:32.011 --> 00:19:33.809 was 2013 referred back to me.

NOTE Confidence: 0.8951285

00:19:33.810 --> 00:19:36.282 I ended up doing a much wider resection

NOTE Confidence: 0.8951285

00:19:36.282 --> 00:19:38.947 of his tumor this time and this is

NOTE Confidence: 0.8951285

00:19:38.947 --> 00:19:40.969 exactly what our path reports look

NOTE Confidence: 0.8951285

00:19:40.969 --> 00:19:43.181 like in the sense that not only

NOTE Confidence: 0.8951285

00:19:43.181 --> 00:19:45.676 do we know that it's a GB M and

NOTE Confidence: 0.8951285

00:19:45.676 --> 00:19:48.018 have some of the molecular makeup,

NOTE Confidence: 0.8951285

00:19:48.020 --> 00:19:50.006 but with the whole exome sequencing

NOTE Confidence: 0.8951285

00:19:50.006 --> 00:19:52.088 were able to really understand the

NOTE Confidence: 0.8951285

00:19:52.088 --> 00:19:54.531 genetic the genomic makeup and so here

NOTE Confidence: 0.8951285

00:19:54.531 --> 00:19:56.873 what we found was that his tumor had

NOTE Confidence: 0.8951285

00:19:56.873 --> 00:19:58.772 become a hyper mutated tumor phenotype.

NOTE Confidence: 0.8951285

00:19:58.772 --> 00:20:00.188 These tumors we know.

NOTE Confidence: 0.8951285

00:20:00.190 --> 00:20:02.325 Are incredibly responsive to immune

NOTE Confidence: 0.8951285

00:20:02.325 --> 00:20:03.606 mediated checkpoint inhibitors.

NOTE Confidence: 0.8951285

00:20:03.610 --> 00:20:08.074 He was started on Nivola map as a result.

NOTE Confidence: 0.8951285

00:20:08.080 --> 00:20:11.006 He continued for the next couple of

NOTE Confidence: 0.8951285

00:20:11.006 --> 00:20:15.122 years or so on nivo and then switch to

NOTE Confidence: 0.8951285

00:20:15.122 --> 00:20:18.183 Avastin and then actually both back and

NOTE Confidence: 0.8951285

00:20:18.183 --> 00:20:21.240 forth an in 2018 he had some recurrences,

NOTE Confidence: 0.8951285

00:20:21.240 --> 00:20:24.320 Avastin, which stopped and I respected him

NOTE Confidence: 0.8951285

00:20:24.320 --> 00:20:27.579 again and so seven years nearly seven years.

NOTE Confidence: 0.8951285

00:20:27.580 --> 00:20:31.756 This December he will be out from his initial

NOTE Confidence: 0.8951285

00:20:31.756 --> 00:20:34.785 glioblastoma surgery and so as I always say,

NOTE Confidence: 0.8951285

00:20:34.790 --> 00:20:37.406 it's not that all of our

NOTE Confidence: 0.8951285

00:20:37.406 --> 00:20:38.714 patients will survive.

NOTE Confidence: 0.8951285

00:20:38.720 --> 00:20:40.112 Seven years with glioblastoma.

NOTE Confidence: 0.8951285

00:20:40.112 --> 00:20:42.550 I wish that was certainly the case,

NOTE Confidence: 0.8951285

00:20:42.550 --> 00:20:44.503 but it is definitely the case in

NOTE Confidence: 0.8951285

00:20:44.503 --> 00:20:47.492 his an I think that it was really

NOTE Confidence: 0.8951285

00:20:47.492 --> 00:20:49.156 being aggressive with surgery,

NOTE Confidence: 0.8951285

00:20:49.160 --> 00:20:50.560 having novel Therapeutics which

NOTE Confidence: 0.8951285

00:20:50.560 --> 00:20:52.660 we have and then also just

NOTE Confidence: 0.85822344

00:20:52.720 --> 00:20:54.590 continuing added in an understanding

NOTE Confidence: 0.85822344

00:20:54.590 --> 00:20:57.136 the genomics of the tumor that allowed

NOTE Confidence: 0.85822344

00:20:57.136 --> 00:20:59.592 us to really tackle his tumor so well.

NOTE Confidence: 0.85822344

00:20:59.600 --> 00:21:02.192 I do know for a fact if he

NOTE Confidence: 0.85822344

00:21:02.192 --> 00:21:04.120 had stopped at the biopsy,

NOTE Confidence: 0.85822344

00:21:04.120 --> 00:21:06.234 he certainly would not be alive now

NOTE Confidence: 0.85822344

00:21:06.234 --> 00:21:08.749 and so that's where aggressive surgery.

NOTE Confidence: 0.85822344

00:21:08.750 --> 00:21:10.742 Really matters, I just want to

NOTE Confidence: 0.85822344

00:21:10.742 --> 00:21:12.521 switch gears quickly to meningiomas

NOTE Confidence: 0.85822344

00:21:12.521 --> 00:21:14.843 because I think this is something

NOTE Confidence: 0.85822344

00:21:14.843 --> 00:21:16.440 important to talk about,

NOTE Confidence: 0.85822344

00:21:16.440 --> 00:21:18.188 especially for community providers.

NOTE Confidence: 0.85822344

00:21:18.188 --> 00:21:19.936 What we're understanding more

NOTE Confidence: 0.85822344

00:21:19.936 --> 00:21:22.226 and more is that these tumors are

NOTE Confidence: 0.85822344

00:21:22.226 --> 00:21:24.120 not as benign as once thought,

NOTE Confidence: 0.85822344

00:21:24.120 --> 00:21:25.584 and understanding the tumor

NOTE Confidence: 0.85822344

00:21:25.584 --> 00:21:27.048 biology is really important,

NOTE Confidence: 0.85822344

00:21:27.050 --> 00:21:28.474 and that's something that

NOTE Confidence: 0.85822344

00:21:28.474 --> 00:21:31.080 we try to do here at Yale.

NOTE Confidence: 0.85822344

00:21:31.080 --> 00:21:34.113 This is a patient who was referred to me

NOTE Confidence: 0.85822344

00:21:34.113 --> 00:21:37.294 who initially had surgery in 2015 or 14.

NOTE Confidence: 0.85822344

00:21:37.300 --> 00:21:40.078 I can't see on my slide.

NOTE Confidence: 0.85822344

00:21:40.080 --> 00:21:42.255 And underwent surgery at another

NOTE Confidence: 0.85822344

00:21:42.255 --> 00:21:43.560 hospital in Connecticut.

NOTE Confidence: 0.85822344

00:21:43.560 --> 00:21:46.170 This is his recurrence in 2017.

NOTE Confidence: 0.85822344

00:21:46.170 --> 00:21:50.520 At that point he had went to New York City,

NOTE Confidence: 0.85822344

36

00:21:50.520 --> 00:21:51.747 underwent radiosurgery and

NOTE Confidence: 0.85822344

00:21:51.747 --> 00:21:53.383 unfortunately was complicated by

NOTE Confidence: 0.85822344

00:21:53.383 --> 00:21:56.178 a lot of medical problems related.

NOTE Confidence: 0.85822344

00:21:56.180 --> 00:21:58.790 He had intractable seizures and weakness.

NOTE Confidence: 0.85822344

00:21:58.790 --> 00:22:00.960 He continued to have growth,

NOTE Confidence: 0.85822344

00:22:00.960 --> 00:22:04.440 as you can see between 2017 and 2019,

NOTE Confidence: 0.85822344

00:22:04.440 --> 00:22:04.873 2019,

NOTE Confidence: 0.85822344

00:22:04.873 --> 00:22:08.337 he was referred to me when he was

NOTE Confidence: 0.85822344

00:22:08.337 --> 00:22:10.220 in a wheelchair.

NOTE Confidence: 0.85822344

00:22:10.220 --> 00:22:11.273 With intractable seizures,

NOTE Confidence: 0.85822344

00:22:11.273 --> 00:22:12.677 so the question is,

NOTE Confidence: 0.85822344

00:22:12.680 --> 00:22:15.116 is whether or not we could have

NOTE Confidence: 0.85822344

00:22:15.116 --> 00:22:16.816 predicted this better the first

NOTE Confidence: 0.85822344

00:22:16.816 --> 00:22:19.176 time around and you can see here he

NOTE Confidence: 0.85822344

00:22:19.247 --> 00:22:21.477 underwent a gross total resection,

NOTE Confidence: 0.85822344

00:22:21.480 --> 00:22:22.184 but again,

NOTE Confidence: 0.85822344

00:22:22.184 --> 00:22:24.296 could this have been handled differently?

NOTE Confidence: 0.85822344

00:22:24.300 --> 00:22:26.196 Initially this is a similar case

NOTE Confidence: 0.85822344

00:22:26.196 --> 00:22:28.170 of a patient who underwent.

NOTE Confidence: 0.85822344

00:22:28.170 --> 00:22:30.276 I don't have his initial scan,

NOTE Confidence: 0.85822344

00:22:30.280 --> 00:22:32.646 but had a small meningioma that was

NOTE Confidence: 0.85822344

00:22:32.646 --> 00:22:35.226 in this area was also told similar

NOTE Confidence: 0.85822344

00:22:35.226 --> 00:22:37.875 to the initial patient that was it

NOTE Confidence: 0.85822344

00:22:37.875 --> 00:22:40.213 was a benign meningioma and he was.

NOTE Confidence: 0.85822344

00:22:40.220 --> 00:22:42.076 Lost to follow up,

NOTE Confidence: 0.85822344

00:22:42.076 --> 00:22:45.810 he returns in 2016 with visual problems.

NOTE Confidence: 0.85822344

00:22:45.810 --> 00:22:50.017 His neurosurgeon then sent him to me.

NOTE Confidence: 0.85822344

00:22:50.020 --> 00:22:51.994 And we performed a gross total

NOTE Confidence: 0.85822344

00:22:51.994 --> 00:22:53.987 resection of his tumor with the

NOTE Confidence: 0.85822344

00:22:53.987 --> 00:22:56.115 help of my kelp revich from plastics

NOTE Confidence: 0.85822344

00:22:56.115 --> 00:22:57.919 and reconstructive surgery,

NOTE Confidence: 0.85822344

00:22:57.920 --> 00:23:00.426 as well as Ben Judson and reconstructed.

NOTE Confidence: 0.85822344

00:23:00.430 --> 00:23:02.894 This is just some muscle to form

NOTE Confidence: 0.85822344

00:23:02.894 --> 00:23:05.100 a flap and steal it off,

NOTE Confidence: 0.85822344

00:23:05.100 --> 00:23:07.254 but could this have been managed

NOTE Confidence: 0.85822344

00:23:07.254 --> 00:23:08.690 differently the first time?

NOTE Confidence: 0.85822344

00:23:08.690 --> 00:23:10.838 And why are these benign meningiomas

NOTE Confidence: 0.85822344

00:23:10.838 --> 00:23:11.912 behaving this way?

NOTE Confidence: 0.85822344

00:23:11.920 --> 00:23:14.390 And so the last 10 years or so we as

NOTE Confidence: 0.85822344

00:23:14.461 --> 00:23:16.723 well as others have really understood

NOTE Confidence: 0.85822344

00:23:16.723 --> 00:23:19.314 or begun begun to understand the

NOTE Confidence: 0.85822344

00:23:19.314 --> 00:23:21.326 genetic Genomic landscape of.

NOTE Confidence: 0.85822344

00:23:21.330 --> 00:23:23.742 Meningiomas and we know that there's

NOTE Confidence: 0.85822344

00:23:23.742 --> 00:23:25.350 specific genomic subgroups that

NOTE Confidence: 0.85822344

00:23:25.415 --> 00:23:27.247 underlie grade one meningiomas,

NOTE Confidence: 0.85822344

00:23:27.250 --> 00:23:30.330 and these are the driver mutations that

NOTE Confidence: 0.85822344

00:23:30.330 --> 00:23:33.168 cause these tumors to happen to occur.

NOTE Confidence: 0.85822344

00:23:33.170 --> 00:23:33.595 Rather,

NOTE Confidence: 0.85822344

00:23:33.595 --> 00:23:36.558 we also have a unveiled pathways to

NOTE Confidence: 0.85822344

00:23:36.560 --> 00:23:39.098 aggressive meningioma in the lab for

NOTE Confidence: 0.85822344

00:23:39.098 --> 00:23:41.636 part of it, but also clinically,

NOTE Confidence: 0.85822344

00:23:41.636 --> 00:23:43.324 as we have here,

NOTE Confidence: 0.85822344

00:23:43.330 --> 00:23:46.046 and so we use this information in

NOTE Confidence: 0.85822344

00:23:46.046 --> 00:23:49.153 real time in a paper that just came

NOTE Confidence: 0.85822344

00:23:49.153 --> 00:23:52.280 out this past week in Neurooncology.

NOTE Confidence: 0.85822344

00:23:52.280 --> 00:23:55.038 We looked at at our experience with

NOTE Confidence: 0.85822344

00:23:55.038 --> 00:23:56.782 meningiomas and basically found

NOTE Confidence: 0.85822344

00:23:56.782 --> 00:23:58.746 that molecular subgroups itself,

NOTE Confidence: 0.85822344

00:23:58.750 --> 00:24:00.470 the driving mutation that's

NOTE Confidence: 0.85822344

00:24:00.470 --> 00:24:02.620 causing these tumors to form,

NOTE Confidence: 0.85822344

00:24:02.620 --> 00:24:04.750 that these subgroups have divergent

NOTE Confidence: 0.85822344

00:24:04.750 --> 00:24:07.800 clinical courses at two years of follow-up,

NOTE Confidence: 0.85822344

00:24:07.800 --> 00:24:09.985 and so there's aggressive types

NOTE Confidence: 0.85822344

00:24:09.985 --> 00:24:12.170 of grade one tumors versus

NOTE Confidence: 0.8522275

00:24:12.252 --> 00:24:15.115 more benign types of grade one tumors.

NOTE Confidence: 0.8522275

00:24:15.120 --> 00:24:17.275 So all grade one meningiomas

NOTE Confidence: 0.8522275

00:24:17.275 --> 00:24:18.999 are not created equally,

NOTE Confidence: 0.8522275

00:24:19.000 --> 00:24:22.549 and that's basically what we've shown here.

NOTE Confidence: 0.8522275

00:24:22.550 --> 00:24:24.230 This was really the first

NOTE Confidence: 0.8522275

00:24:24.230 --> 00:24:26.246 of that study to do that.

NOTE Confidence: 0.8522275

00:24:26.246 --> 00:24:28.775 What we also have found and published

NOTE Confidence: 0.8522275

00:24:28.775 --> 00:24:30.980 previously is that these subgroups localize

NOTE Confidence: 0.8522275

00:24:30.980 --> 00:24:33.300 as you can see along the skull base.

NOTE Confidence: 0.8522275

00:24:33.300 --> 00:24:35.852 And again I can go into this in

NOTE Confidence: 0.8522275

00:24:35.852 --> 00:24:37.670 further detail at another time,

NOTE Confidence: 0.8522275

00:24:37.670 --> 00:24:39.548 but just the take home point

NOTE Confidence: 0.8522275

00:24:39.548 --> 00:24:41.370 is that not all benign,

NOTE Confidence: 0.8522275

00:24:41.370 --> 00:24:43.045 not all grade one meningioma's

NOTE Confidence: 0.8522275

00:24:43.045 --> 00:24:44.050 behave behind benign,

NOTE Confidence: 0.8522275

00:24:44.050 --> 00:24:45.730 so it's very important to

NOTE Confidence: 0.8522275

00:24:45.730 --> 00:24:47.074 be aggressive with them,

NOTE Confidence: 0.8522275

00:24:47.080 --> 00:24:49.411 and so this first case example that

NOTE Confidence: 0.8522275

00:24:49.411 --> 00:24:51.778 I gave turned out was not benign.

NOTE Confidence: 0.8522275

00:24:51.780 --> 00:24:53.460 This was an atypical meningioma.

NOTE Confidence: 0.8522275

00:24:53.460 --> 00:24:55.170 This was the pathology report

NOTE Confidence: 0.8522275

00:24:55.170 --> 00:24:56.196 that we received.

NOTE Confidence: 0.8522275

00:24:56.200 --> 00:24:59.028 As well as the whole exome sequencing

NOTE Confidence: 0.8522275

00:24:59.028 --> 00:25:01.211 information and what this told us

NOTE Confidence: 0.8522275

00:25:01.211 --> 00:25:03.717 based on what we know was that this

NOTE Confidence: 0.8522275

00:25:03.717 --> 00:25:05.721 was initially a grade two tumor

NOTE Confidence: 0.8522275

00:25:05.721 --> 00:25:07.432 when he was initially diagnosed,

NOTE Confidence: 0.8522275

00:25:07.432 --> 00:25:09.538 but unfortunately was not diagnosed properly,

NOTE Confidence: 0.8522275

00:25:09.540 --> 00:25:12.456 and so again goes back to the benefits of

NOTE Confidence: 0.8522275

00:25:12.456 --> 00:25:15.150 having a center that does this routinely.

NOTE Confidence: 0.8522275

00:25:15.150 --> 00:25:17.425 A center that has experts that are

NOTE Confidence: 0.8522275

00:25:17.425 --> 00:25:18.806 really dedicated to understanding

NOTE Confidence: 0.8522275

00:25:18.806 --> 00:25:21.207 this at a much deeper level and

NOTE Confidence: 0.8522275

00:25:21.207 --> 00:25:23.827 that's what leads us to our precision

NOTE Confidence: 0.8522275

00:25:23.827 --> 00:25:25.323 brain tumor treatment program,

NOTE Confidence: 0.8522275

00:25:25.330 --> 00:25:27.436 which I discussed in my colleagues,

NOTE Confidence: 0.8522275

00:25:27.440 --> 00:25:28.547 will also discuss.

NOTE Confidence: 0.8522275

00:25:28.547 --> 00:25:30.761 We have all of our patients

NOTE Confidence: 0.8522275

00:25:30.761 --> 00:25:32.549 navigate through our program,

NOTE Confidence: 0.8522275

00:25:32.550 --> 00:25:34.054 knowing that multidisciplinary programs

NOTE Confidence: 0.8522275

00:25:34.054 --> 00:25:35.934 can be tricky and overwhelming,

NOTE Confidence: 0.8522275

00:25:35.940 --> 00:25:38.271 and so we try to organize that

NOTE Confidence: 0.8522275

00:25:38.271 --> 00:25:40.090 as best as possible.

NOTE Confidence: 0.8522275

00:25:40.090 --> 00:25:42.352 We offer a brain tumor support

NOTE Confidence: 0.8522275

00:25:42.352 --> 00:25:43.860 group which meets monthly.

NOTE Confidence: 0.8522275

00:25:43.860 --> 00:25:46.206 We have an acoustic neuroma support

NOTE Confidence: 0.8522275

00:25:46.206 --> 00:25:48.485 group that meets quarterly and then

NOTE Confidence: 0.8522275

00:25:48.485 --> 00:25:50.739 of course we have funding for our

NOTE Confidence: 0.8522275

00:25:50.739 --> 00:25:53.146 patients and so Connecticut Brain Tumor

NOTE Confidence: 0.8522275

00:25:53.146 --> 00:25:55.561 Alliance we've partnered with for years,

NOTE Confidence: 0.8522275

00:25:55.561 --> 00:25:57.125 which has been incredibly

NOTE Confidence: 0.8522275

00:25:57.125 --> 00:25:58.689 helpful for patient support.

NOTE Confidence: 0.8522275

00:25:58.690 --> 00:26:01.054 As well As for research and

NOTE Confidence: 0.8522275

00:26:01.054 --> 00:26:02.236 the Lovemark Foundation,

NOTE Confidence: 0.8522275

00:26:02.240 --> 00:26:03.812 more recently has donated

NOTE Confidence: 0.8522275

00:26:03.812 --> 00:26:05.777 $350,000 to us so far,

NOTE Confidence: 0.8522275

00:26:05.780 --> 00:26:08.230 with every cent going to our patients

NOTE Confidence: 0.8522275

00:26:08.230 --> 00:26:10.899 to help them get through treatment.

NOTE Confidence: 0.8522275

00:26:10.900 --> 00:26:12.082 So, in summary,

NOTE Confidence: 0.8522275

00:26:12.082 --> 00:26:13.658 from a surgical perspective,

NOTE Confidence: 0.8522275

00:26:13.660 --> 00:26:15.820 it's important to be as aggressive

NOTE Confidence: 0.8522275

00:26:15.820 --> 00:26:18.000 and as safe as possible.

NOTE Confidence: 0.8522275

00:26:18.000 --> 00:26:19.965 It makes a big difference

NOTE Confidence: 0.8522275

00:26:19.965 --> 00:26:22.330 in terms of outcomes from a

NOTE Confidence: 0.8522275

00:26:22.330 --> 00:26:24.026 quality and quantity standpoint,

NOTE Confidence: 0.8522275

00:26:24.026 --> 00:26:25.722 and we're certainly able

NOTE Confidence: 0.8522275

00:26:25.722 --> 00:26:27.850 to do that here at Yale,

NOTE Confidence: 0.8522275

00:26:27.850 --> 00:26:30.058 we try to work as collaboratively

NOTE Confidence: 0.8522275

00:26:30.058 --> 00:26:32.280 as possible with the community.

NOTE Confidence: 0.8522275

00:26:32.280 --> 00:26:34.289 Knowing in the end we just want

NOTE Confidence: 0.8522275

00:26:34.289 --> 00:26:36.331 our patients to have the best care

NOTE Confidence: 0.8522275

00:26:36.331 --> 00:26:38.367 possible and be as close to home

NOTE Confidence: 0.8522275

00:26:38.367 --> 00:26:40.376 as possible and then feel free to

NOTE Confidence: 0.8522275

00:26:40.376 --> 00:26:42.650 reach us anytime there's our number.

NOTE Confidence: 0.8522275

00:26:42.650 --> 00:26:44.350 And there's my email.

NOTE Confidence: 0.8522275

00:26:44.350 --> 00:26:44.990 Thank you.

NOTE Confidence: 0.86619025

00:26:52.320 --> 00:26:55.197 So next, it's my pleasure to introduce

NOTE Confidence: 0.86619025

00:26:55.197 --> 00:26:58.504 doctor Nick Blonde and he is one of

NOTE Confidence: 0.86619025

00:26:58.504 --> 00:27:00.104 our wonderful neural oncologists,

NOTE Confidence: 0.86619025

00:27:00.110 --> 00:27:01.340 an assistant professor.

NOTE Confidence: 0.47589716

00:27:04.700 --> 00:27:07.190 Excitable turn off.

NOTE Confidence: 0.47589716

00:27:07.190 --> 00:27:08.620 Can you see my screen?

NOTE Confidence: 0.47589716

00:27:08.620 --> 00:27:10.708 Let's see the.

NOTE Confidence: 0.47589716

00:27:10.708 --> 00:27:12.796 Thumbs up excellent.

NOTE Confidence: 0.47589716

00:27:12.800 --> 00:27:14.400 Thanks again for the opportunity

NOTE Confidence: 0.47589716

00:27:14.400 --> 00:27:16.517 to present here will be providing

NOTE Confidence: 0.47589716

00:27:16.517 --> 00:27:18.345 some neurooncology updates and

NOTE Confidence: 0.47589716

00:27:18.345 --> 00:27:19.716 brain tumor management.

NOTE Confidence: 0.47589716

00:27:19.720 --> 00:27:21.994 For disclosure on the Yale principle

NOTE Confidence: 0.47589716

00:27:21.994 --> 00:27:23.987 investigator from a trial sponsored

NOTE Confidence: 0.47589716

00:27:23.987 --> 00:27:26.062 by the nonprofit Global Coalition

NOTE Confidence: 0.47589716

00:27:26.062 --> 00:27:28.413 for adaptive research or Qi Car

NOTE Confidence: 0.47589716

00:27:28.413 --> 00:27:30.279 and I also have done consulting

NOTE Confidence: 0.47589716

00:27:30.279 --> 00:27:31.656 and speaking for novocure,

NOTE Confidence: 0.47589716

00:27:31.656 --> 00:27:34.267 the company that produces the optune device.

NOTE Confidence: 0.47589716

00:27:34.270 --> 00:27:36.508 I produce this into presentation itself,

NOTE Confidence: 0.47589716

00:27:36.510 --> 00:27:38.840 so I'll be providing updates

NOTE Confidence: 0.47589716

00:27:38.840 --> 00:27:41.170 on glioblastomas and then a

NOTE Confidence: 0.47589716

00:27:41.262 --> 00:27:43.430 few slides on meningiomas.

NOTE Confidence: 0.47589716

00:27:43.430 --> 00:27:44.426 As you know,

NOTE Confidence: 0.47589716

00:27:44.426 --> 00:27:46.086 glioblastoma is the most common

NOTE Confidence: 0.47589716

00:27:46.086 --> 00:27:47.990 malignant primary brain tumor in adults,

NOTE Confidence: 0.47589716

00:27:47.990 --> 00:27:49.946 and it arises from the malignant

NOTE Confidence: 0.47589716

00:27:49.946 --> 00:27:51.250 transformation of glial cells,

NOTE Confidence: 0.47589716

00:27:51.250 --> 00:27:52.880 which are the normal supporting

NOTE Confidence: 0.47589716

00:27:52.880 --> 00:27:54.184 cells of the brain.

NOTE Confidence: 0.47589716

00:27:54.190 --> 00:27:56.056 The tumor is composed of modules

NOTE Confidence: 0.47589716

00:27:56.056 --> 00:27:58.005 comprising the bulky tumor as well

NOTE Confidence: 0.47589716

00:27:58.005 --> 00:27:59.635 as infiltrative glioma cells that

NOTE Confidence: 0.47589716

00:27:59.635 --> 00:28:01.359 diffused through the brain tissue.

NOTE Confidence: 0.47589716

00:28:01.360 --> 00:28:02.660 And because of this,

NOTE Confidence: 0.47589716

00:28:02.660 --> 00:28:04.285 infiltrated nature of the disease,

NOTE Confidence: 0.47589716

00:28:04.290 --> 00:28:05.268 the tumor, unfortunately,

NOTE Confidence: 0.47589716

00:28:05.268 --> 00:28:06.898 cannot be cured by surgery.

NOTE Confidence: 0.47589716

00:28:06.900 --> 00:28:07.267 However,

NOTE Confidence: 0.47589716

00:28:07.267 --> 00:28:09.102 the extensive surgery does affect

NOTE Confidence: 0.47589716

00:28:09.102 --> 00:28:10.570 the prognosis and patients

NOTE Confidence: 0.47589716

00:28:10.630 --> 00:28:12.322 that can have a more extensive

NOTE Confidence: 0.47589716

00:28:12.322 --> 00:28:14.040 surgery or gross total resection.

NOTE Confidence: 0.47589716

00:28:14.040 --> 00:28:15.207 To live longer.

NOTE Confidence: 0.47589716

00:28:15.207 --> 00:28:16.763 And then following maximal

NOTE Confidence: 0.47589716

00:28:16.763 --> 00:28:17.930 safe surgical resection,

NOTE Confidence: 0.47589716

00:28:17.930 --> 00:28:19.362 patients will require further

NOTE Confidence: 0.47589716

00:28:19.362 --> 00:28:21.510 treatment or else regrowth will occur,

NOTE Confidence: 0.47589716

00:28:21.510 --> 00:28:23.568 typically starting within two to three

NOTE Confidence: 0.47589716

00:28:23.568 --> 00:28:25.440 months after the initial surgery,

NOTE Confidence: 0.47589716

00:28:25.440 --> 00:28:26.872 and these follow-up treatments

NOTE Confidence: 0.47589716

00:28:26.872 --> 00:28:28.304 comprise radiation and chemotherapy.

NOTE Confidence: 0.8133269

00:28:30.620 --> 00:28:32.028 Glioblastoma is typically discovered

NOTE Confidence: 0.8133269

00:28:32.028 --> 00:28:34.859 in an adult that has a first time,

NOTE Confidence: 0.8133269

00:28:34.860 --> 00:28:35.536 unprovoked seizure.

NOTE Confidence: 0.8133269

00:28:35.536 --> 00:28:37.226 Other symptoms which can arise

NOTE Confidence: 0.8133269

00:28:37.226 --> 00:28:39.573 leading to the discovery of a

NOTE Confidence: 0.8133269

00:28:39.573 --> 00:28:41.281 glioblastoma can include progressively

NOTE Confidence: 0.8133269

00:28:41.281 --> 00:28:42.848 worsening headaches, visual changes,

NOTE Confidence: 0.8133269

00:28:42.848 --> 00:28:44.618 the outset of focal weakness,

NOTE Confidence: 0.8133269

00:28:44.620 --> 00:28:46.020 or sensory and pyramid,

NOTE Confidence: 0.8133269

00:28:46.020 --> 00:28:47.770 or cognitive impairments such as

NOTE Confidence: 0.8133269

00:28:47.770 --> 00:28:49.568 change in personality or memory.

NOTE Confidence: 0.8133269

00:28:49.570 --> 00:28:51.154 Typically, these neurological symptoms

NOTE Confidence: 0.8133269

00:28:51.154 --> 00:28:53.921 will lead someone to see their primary

NOTE Confidence: 0.8133269

00:28:53.921 --> 00:28:55.919 care doctor or neurologist or seek

NOTE Confidence: 0.8133269

00:28:55.919 --> 00:28:58.259 treatment in ER where imaging is done

NOTE Confidence: 0.8133269

00:28:58.259 --> 00:29:00.185 demonstrating a Mass in the brain.

NOTE Confidence: 0.8133269

00:29:00.190 --> 00:29:02.422 Then we obtain an MRI of the brain

NOTE Confidence: 0.8133269

00:29:02.422 --> 00:29:04.023 which typically has characteristic

NOTE Confidence: 0.8133269

00:29:04.023 --> 00:29:05.496 features of glioblastoma.

NOTE Confidence: 0.8133269

00:29:05.500 --> 00:29:08.604 They appear as mass lesions within the brain.

NOTE Confidence: 0.8133269

00:29:08.610 --> 00:29:09.990 Typically causing swelling around

NOTE Confidence: 0.8133269

00:29:09.990 --> 00:29:11.370 that region and compression

NOTE Confidence: 0.8133269

00:29:11.370 --> 00:29:12.950 on other print structures,

NOTE Confidence: 0.8133269

00:29:12.950 --> 00:29:15.582 and we usually can have a suspicion

NOTE Confidence: 0.8133269

00:29:15.582 --> 00:29:18.393 based on the MRI that this tumor

NOTE Confidence: 0.8133269

00:29:18.393 --> 00:29:20.393 is in fact a glioblastoma.

NOTE Confidence: 0.8133269

00:29:20.400 --> 00:29:21.900 However, we need surgery,

NOTE Confidence: 0.8133269

00:29:21.900 --> 00:29:24.150 surgical intervention or at a biopsy.

NOTE Confidence: 0.8133269

00:29:24.150 --> 00:29:25.066 At minimum,

NOTE Confidence: 0.8133269

00:29:25.066 --> 00:29:27.814 tap tissue to determine that the

NOTE Confidence: 0.8133269

00:29:27.814 --> 00:29:31.147 tumor is in fact a glioblastoma RGB.

NOTE Confidence: 0.8133269

00:29:31.150 --> 00:29:34.180 In terms of prognosis for glioblastoma,

NOTE Confidence: 0.8133269

00:29:34.180 --> 00:29:39.269 there's a few factors which impact prognosis.

NOTE Confidence: 0.8133269

00:29:39.270 --> 00:29:41.450 Critical one really is age,

NOTE Confidence: 0.8133269

00:29:41.450 --> 00:29:43.190 age of the patient.

NOTE Confidence: 0.8133269

00:29:43.190 --> 00:29:44.930 So particularly for patients

NOTE Confidence: 0.8133269

00:29:44.930 --> 00:29:46.669 age 70 and older,

NOTE Confidence: 0.8133269

00:29:46.670 --> 00:29:48.675 they may have more complications

NOTE Confidence: 0.8133269

00:29:48.675 --> 00:29:50.680 that arise from treatments including

NOTE Confidence: 0.8133269

00:29:50.747 --> 00:29:52.319 radiation and chemotherapy,

NOTE Confidence: 0.8133269

00:29:52.320 --> 00:29:54.580 and so different treatment considerations

NOTE Confidence: 0.8133269

00:29:54.580 --> 00:29:57.298 or deescalating therapy may actually be

NOTE Confidence: 0.8133269

00:29:57.298 --> 00:29:59.278 preferred for this patient population,

NOTE Confidence: 0.8133269

00:29:59.280 --> 00:30:00.074 the extent.

NOTE Confidence: 0.8133269

00:30:00.074 --> 00:30:01.662 Surgical resection also has

NOTE Confidence: 0.8133269

00:30:01.662 --> 00:30:03.250 an impact on prognosis.

NOTE Confidence: 0.8133269

00:30:03.250 --> 00:30:04.348 As I mentioned,

NOTE Confidence: 0.8133269

00:30:04.348 --> 00:30:06.544 and then the performance status of

NOTE Confidence: 0.8133269

00:30:06.544 --> 00:30:08.737 the patient following their surgery

NOTE Confidence: 0.8133269

00:30:08.737 --> 00:30:11.377 also impact prognosis and show us

NOTE Confidence: 0.8133269

00:30:11.450 --> 00:30:13.890 picture here on the side of the slide

NOTE Confidence: 0.8133269

00:30:13.890 --> 00:30:15.616 for the Karnofsky performance status

NOTE Confidence: 0.8133269

00:30:15.616 --> 00:30:18.660 of seeing how a patient is and the

NOTE Confidence: 0.8133269

00:30:18.660 --> 00:30:20.880 hope is that following their surgery,

NOTE Confidence: 0.8133269

00:30:20.880 --> 00:30:23.202 the patient will have a full

NOTE Confidence: 0.8133269

00:30:23.202 --> 00:30:25.755 recovery and get back to 100% normal

NOTE Confidence: 0.8133269

00:30:25.755 --> 00:30:27.630 functioning and ability to work.

NOTE Confidence: 0.8133269

00:30:27.630 --> 00:30:30.248 Typically patients will have a good recovery,

NOTE Confidence: 0.8133269

00:30:30.250 --> 00:30:30.840 a karnofsky.

NOTE Confidence: 0.8133269

00:30:30.840 --> 00:30:34.019 Scale of 80 to 90 is like a good goal,

NOTE Confidence: 0.8133269

00:30:34.020 --> 00:30:36.071 even to shoot for for initial recovery

NOTE Confidence: 0.8133269

00:30:36.071 --> 00:30:37.657 from surgery and the performance

NOTE Confidence: 0.8133269

00:30:37.657 --> 00:30:39.932 status really just depends on where the

NOTE Confidence: 0.8133269

00:30:39.932 --> 00:30:41.951 tumor was located in the brain and the

NOTE Confidence: 0.8133269

00:30:41.951 --> 00:30:45.120 size of the tumor which it was discovered.

NOTE Confidence: 0.8133269

00:30:45.120 --> 00:30:46.780 And then more recently discovered

NOTE Confidence: 0.8133269

00:30:46.780 --> 00:30:48.875 that there is some molecular subtypes

NOTE Confidence: 0.8133269

00:30:48.875 --> 00:30:51.125 of glioblastoma that also have a

NOTE Confidence: 0.8133269

00:30:51.125 --> 00:30:53.059 very significant implication for prognosis.

NOTE Confidence: 0.8133269

00:30:53.060 --> 00:30:54.865 2 main factors being the

NOTE Confidence: 0.8133269

00:30:54.865 --> 00:30:56.670 MGMT status and I DH,

NOTE Confidence: 0.8133269

00:30:56.670 --> 00:30:58.836 one status and more recently discovered.

NOTE Confidence: 0.8133269

00:30:58.840 --> 00:31:01.705 Other mutations are also important

NOTE Confidence: 0.8133269

00:31:01.705 --> 00:31:03.997 to help prognosis patient.

NOTE Confidence: 0.8133269

00:31:04.000 --> 00:31:06.800 In terms of the standard of care therapies

NOTE Confidence: 0.8133269

00:31:06.800 --> 00:31:08.900 for glioblastoma after the patient

NOTE Confidence: 0.8133269

00:31:08.900 --> 00:31:11.125 undergoes maximal safe surgical resection,

NOTE Confidence: 0.8133269

00:31:11.130 --> 00:31:12.798 they received radiation therapy,

NOTE Confidence: 0.8133269

00:31:12.798 --> 00:31:14.466 along with Tim's olamide

NOTE Confidence: 0.8133269

00:31:14.466 --> 00:31:16.279 chemotherapy or TM ZTMZ's pills,

NOTE Confidence: 0.8133269

00:31:16.280 --> 00:31:18.260 which is taken at home.

NOTE Confidence: 0.8133269

00:31:18.260 --> 00:31:20.205 It's A kind of chemotherapy

NOTE Confidence: 0.8133269

00:31:20.205 --> 00:31:22.610 that damages DNA in the cell,

NOTE Confidence: 0.8133269

00:31:22.610 --> 00:31:24.090 called an alkylating chemotherapy,

NOTE Confidence: 0.8133269

00:31:24.090 --> 00:31:26.805 and is given with radiation and then

NOTE Confidence: 0.8133269

00:31:26.805 --> 00:31:28.990 subsequently had monthly cycles by

NOTE Confidence: 0.8133269

00:31:28.990 --> 00:31:31.168 combining Timbers Olamide chemotherapy with

NOTE Confidence: 0.8133269

00:31:31.168 --> 00:31:33.376 radiation in a clinical trial population.

00:31:33.380 --> 00:31:35.366 The average survival time was improved

00:31:35.366 --> 00:31:37.469 from 12 months to 14.6 months.

00:31:37.470 --> 00:31:39.930 Antennas olumide has been the standard

00:31:39.930 --> 00:31:42.390 of care for treatment since 2005.

00:31:42.390 --> 00:31:43.497 A second line,

00:31:43.497 --> 00:31:43.866 chemotherapy,

00:31:43.866 --> 00:31:46.080 which is also commonly used asbestos,

00:31:46.080 --> 00:31:50.140 is a mav, also referred to as a vast in Orem.

00:31:50.140 --> 00:31:52.639 Basi and bevacizumab is a biological drug

00:31:52.639 --> 00:31:55.693 which binds a hormone called veg F that

00:31:55.693 --> 00:31:58.025 is responsible for brain swelling and

00:31:58.025 --> 00:32:00.468 growth of blood vessels into the tumor.

00:32:00.470 --> 00:32:01.679 By administering bevacizumab,

00:32:01.679 --> 00:32:04.097 patients have improvement of brain swelling

00:32:04.097 --> 00:32:05.829 as sometimes experience shrinkage of

NOTE Confidence: 0.77498674

00:32:05.829 --> 00:32:08.590 tumor or stability at in a clinical trial.

NOTE Confidence: 0.77498674

00:32:08.590 --> 00:32:10.302 Addition of bevacizumab having

NOTE Confidence: 0.77498674

00:32:10.302 --> 00:32:12.014 increased average survival time

NOTE Confidence: 0.77498674

00:32:12.014 --> 00:32:13.669 patients out to 16 months.

NOTE Confidence: 0.77498674

00:32:13.670 --> 00:32:15.518 Some patients going longer and it

NOTE Confidence: 0.77498674

00:32:15.518 --> 00:32:17.490 didn't matter if patients receive that.

NOTE Confidence: 0.77498674

00:32:17.490 --> 00:32:19.690 This is a map up front for treatment

NOTE Confidence: 0.77498674

00:32:19.690 --> 00:32:21.937 along with radiation to Missoula might,

NOTE Confidence: 0.77498674

00:32:21.940 --> 00:32:24.159 or if they received it at recurrence,

NOTE Confidence: 0.77498674

00:32:24.160 --> 00:32:25.824 so it's typically saved

NOTE Confidence: 0.77498674

00:32:25.824 --> 00:32:27.488 for use in recurrence.

NOTE Confidence: 0.77498674

00:32:27.490 --> 00:32:27.839 Finally,

NOTE Confidence: 0.77498674

00:32:27.839 --> 00:32:29.933 the optune device has been approved

NOTE Confidence: 0.77498674

00:32:29.933 --> 00:32:32.290 for treatment of newly diagnosed GBM

NOTE Confidence: 0.77498674

00:32:32.290 --> 00:32:33.958 following completion of radiation

NOTE Confidence: 0.77498674

00:32:33.958 --> 00:32:36.088 therapy options are portable medical

NOTE Confidence: 0.77498674

00:32:36.088 --> 00:32:38.118 device that delivers an electrical

NOTE Confidence: 0.77498674

00:32:38.118 --> 00:32:40.474 field that inhibits the mitosis of

NOTE Confidence: 0.77498674

00:32:40.474 --> 00:32:42.742 tumor cells functions as an anti

NOTE Confidence: 0.77498674

00:32:42.742 --> 00:32:45.343 mitotic therapy and is intended to be

NOTE Confidence: 0.77498674

00:32:45.343 --> 00:32:47.747 used along with mazola might cycles

NOTE Confidence: 0.77498674

00:32:47.747 --> 00:32:50.007 in the clinical trial population.

NOTE Confidence: 0.77498674

00:32:50.010 --> 00:32:52.344 Patients that were willing and able

NOTE Confidence: 0.77498674

00:32:52.344 --> 00:32:55.280 to use optune the use of optune

NOTE Confidence: 0.77498674

00:32:55.280 --> 00:32:57.445 increased the average survival time

NOTE Confidence: 0.77498674

00:32:57.445 --> 00:33:00.008 from 19.8 months to 24.7 months.

NOTE Confidence: 0.77498674

00:33:00.010 --> 00:33:02.302 So these are the three standard

NOTE Confidence: 0.77498674

00:33:02.302 --> 00:33:04.303 therapies which typically offered to

NOTE Confidence: 0.77498674

00:33:04.303 --> 00:33:06.733 essentially all of my patients for

NOTE Confidence: 0.77498674

00:33:06.733 --> 00:33:08.723 treatment consideration, and you see,

NOTE Confidence: 0.77498674

00:33:08.723 --> 00:33:11.069 we have improved average survival time

NOTE Confidence: 0.77498674

00:33:11.069 --> 00:33:14.300 by about doubling over the last 15 years,

NOTE Confidence: 0.77498674

00:33:14.300 --> 00:33:16.676 but there's certainly more to go.

NOTE Confidence: 0.77498674

00:33:16.680 --> 00:33:17.871 Additional chemotherapies could

NOTE Confidence: 0.77498674

00:33:17.871 --> 00:33:19.856 be considered for select patients,

NOTE Confidence: 0.77498674

00:33:19.860 --> 00:33:21.444 and these include Lomustine,

NOTE Confidence: 0.77498674

00:33:21.444 --> 00:33:23.434 the PCV, chemo, combination therapy,

NOTE Confidence: 0.77498674

00:33:23.434 --> 00:33:24.626 regehr, Afan, if,

NOTE Confidence: 0.77498674

00:33:24.626 --> 00:33:26.210 or other targeted therapies,

NOTE Confidence: 0.77498674

00:33:26.210 --> 00:33:30.088 and these are in the NCCN guidelines.

NOTE Confidence: 0.77498674

00:33:30.090 --> 00:33:32.344 And so I touched on molecular features

NOTE Confidence: 0.77498674

00:33:32.344 --> 00:33:33.930 being important for prognosis.

NOTE Confidence: 0.77498674

00:33:33.930 --> 00:33:36.170 It was discovered about 10 to 15

NOTE Confidence: 0.77498674

00:33:36.170 --> 00:33:38.707 years ago that The MGM T status

NOTE Confidence: 0.77498674

00:33:38.707 --> 00:33:40.207 is important for prognosis.

NOTE Confidence: 0.77498674

00:33:40.210 --> 00:33:42.604 Patient MGMT is an enzyme that can

NOTE Confidence: 0.77498674

00:33:42.604 --> 00:33:45.120 repair the damage done to DNA from

NOTE Confidence: 0.77498674

00:33:45.120 --> 00:33:47.250 10 mazzola might chemotherapy and the

NOTE Confidence: 0.77498674

00:33:47.322 --> 00:33:49.667 gene is controlled by a promoter which

NOTE Confidence: 0.77498674

00:33:49.667 --> 00:33:52.430 is turned on and off by methylation status.

NOTE Confidence: 0.77498674

00:33:52.430 --> 00:33:54.255 Metallated tumors have turned off

NOTE Confidence: 0.77498674

00:33:54.255 --> 00:33:56.787 the promoter and so the enzyme is

NOTE Confidence: 0.77498674

00:33:56.787 --> 00:33:58.707 in low levels in those tumors.

NOTE Confidence: 0.77498674

00:33:58.710 --> 00:34:00.900 Thus, patients with methylated GB M.

NOTE Confidence: 0.77498674

00:34:00.900 --> 00:34:02.937 Help more sustained damage from Tim's Ola,

NOTE Confidence: 0.77498674

00:34:02.940 --> 00:34:05.268 my chemo and those pieces will live longer,

NOTE Confidence: 0.77498674

00:34:05.270 --> 00:34:06.107 so I'm GMT.

NOTE Confidence: 0.77498674

00:34:06.107 --> 00:34:07.223 Metalation status is important

NOTE Confidence: 0.77498674

00:34:07.223 --> 00:34:08.760 to figure out for patients,

NOTE Confidence: 0.77498674

00:34:08.760 --> 00:34:12.036 and we assessed us on all of our patients.

NOTE Confidence: 0.77498674

00:34:12.040 --> 00:34:12.383 Secondly,

NOTE Confidence: 0.77498674

00:34:12.383 --> 00:34:14.784 the ID H1 status is also important

NOTE Confidence: 0.77498674

00:34:14.784 --> 00:34:15.470 to determine.

NOTE Confidence: 0.77498674

00:34:15.470 --> 00:34:17.186 This is a gene involved with

NOTE Confidence: 0.77498674

00:34:17.186 --> 00:34:18.863 tumor metabolism and is typically

NOTE Confidence: 0.77498674

00:34:18.863 --> 00:34:20.270 mutated in astrocytomas,

NOTE Confidence: 0.77498674

00:34:20.270 --> 00:34:22.664 a less aggressive kind of brain cancer.

NOTE Confidence: 0.77498674

00:34:22.670 --> 00:34:24.728 If Glioblastomas discovered with ID H1,

NOTE Confidence: 0.77498674

00:34:24.730 --> 00:34:27.194 that indicates that in fact it was

NOTE Confidence: 0.77498674

00:34:27.194 --> 00:34:28.932 an astrocytoma originally which has

NOTE Confidence: 0.77498674

00:34:28.932 --> 00:34:30.798 become more aggressive but still may

NOTE Confidence: 0.77498674

00:34:30.798 --> 00:34:33.645 have a better prognosis compared to a tumor,

NOTE Confidence: 0.77498674

00:34:33.650 --> 00:34:36.415 which has a normal ID HG that's

NOTE Confidence: 0.77498674

00:34:36.415 --> 00:34:38.550 referred to as wild type.

NOTE Confidence: 0.77498674

00:34:38.550 --> 00:34:40.520 And then recently other mutations

NOTE Confidence: 0.77498674

00:34:40.520 --> 00:34:42.490 have been discovered that have

NOTE Confidence: 0.77498674

00:34:42.551 --> 00:34:44.090 targeted therapy options.

NOTE Confidence: 0.77498674

00:34:44.090 --> 00:34:46.640 These include the beer at V.

NOTE Confidence: 0.77498674

00:34:46.640 --> 00:34:47.918 600 E mutation,

NOTE Confidence: 0.77498674

00:34:47.918 --> 00:34:48.770 NTRK Fusion,

NOTE Confidence: 0.77498674

00:34:48.770 --> 00:34:51.326 both which have FDA approved therapies,

NOTE Confidence: 0.77498674

00:34:51.330 --> 00:34:54.305 an FG FR3 Fusion is under development,

NOTE Confidence: 0.7981688

00:34:54.310 --> 00:34:56.440 currently with a few drugs

NOTE Confidence: 0.7981688

00:34:56.440 --> 00:34:58.144 being devised for treatment.

NOTE Confidence: 0.7981688

00:34:58.150 --> 00:35:01.110 Also mismatch repair deficiency.

NOTE Confidence: 0.7981688

00:35:01.110 --> 00:35:03.114 If that's discovered in the tumor

NOTE Confidence: 0.7981688

00:35:03.114 --> 00:35:04.858 Pember Lizum app or keytruda

NOTE Confidence: 0.7981688

00:35:04.858 --> 00:35:06.898 can be used as FDA indicated

NOTE Confidence: 0.7981688

00:35:06.898 --> 00:35:08.810 for treatment in those tumors,

NOTE Confidence: 0.7981688

00:35:08.810 --> 00:35:10.560 and I have your picture

NOTE Confidence: 0.7981688

00:35:10.560 --> 00:35:11.960 of both Water Foundation.

NOTE Confidence: 0.7981688

00:35:11.960 --> 00:35:15.110 One report would look like up at the top,

NOTE Confidence: 0.7981688

00:35:15.110 --> 00:35:16.510 showing those genomic alterations

NOTE Confidence: 0.7981688

00:35:16.510 --> 00:35:18.610 identified and our own in-house system.

NOTE Confidence: 0.7981688

00:35:18.610 --> 00:35:20.360 Our whole exome sequencing is

NOTE Confidence: 0.7981688

00:35:20.360 --> 00:35:21.410 doctor maternal referenced.

NOTE Confidence: 0.7981688

00:35:21.410 --> 00:35:23.276 The benefits of the whole exome

NOTE Confidence: 0.7981688

00:35:23.276 --> 00:35:25.370 sequencing is that beyond just looking

NOTE Confidence: 0.7981688

00:35:25.370 --> 00:35:27.355 at the Genomic alterations identified,

NOTE Confidence: 0.7981688

00:35:27.360 --> 00:35:29.652 we learn about copy number alterations

NOTE Confidence: 0.7981688

00:35:29.652 --> 00:35:31.563 and copy number alterations occur

NOTE Confidence: 0.7981688

00:35:31.563 --> 00:35:33.495 from gain or loss of chromosomes.

NOTE Confidence: 0.7981688

00:35:33.500 --> 00:35:36.167 And we know now we have lost,

NOTE Confidence: 0.7981688

00:35:36.170 --> 00:35:37.690 always comprised of many

NOTE Confidence: 0.7981688

00:35:37.690 --> 00:35:38.450 chromosomal abnormalities,

NOTE Confidence: 0.7981688

00:35:38.450 --> 00:35:40.355 gains and losses of chromosomes

NOTE Confidence: 0.7981688

00:35:40.355 --> 00:35:41.498 or chromosome fragments,

NOTE Confidence: 0.7981688

00:35:41.500 --> 00:35:43.024 and that contributes to

NOTE Confidence: 0.7981688

00:35:43.024 --> 00:35:44.167 their malignant behavior.

NOTE Confidence: 0.7920762

00:35:46.440 --> 00:35:48.320 Then amino therapy has made

NOTE Confidence: 0.7920762

00:35:48.320 --> 00:35:50.200 many gains in cancer treatment

NOTE Confidence: 0.7920762

00:35:50.265 --> 00:35:52.080 over the last several years.

NOTE Confidence: 0.7920762

00:35:52.080 --> 00:35:54.336 It's still in development for glioblastoma.

NOTE Confidence: 0.7920762

00:35:54.340 --> 00:35:56.590 As I mentioned, Keytruda is approved,

NOTE Confidence: 0.7920762

00:35:56.590 --> 00:35:58.094 but only in tumors,

NOTE Confidence: 0.7920762

00:35:58.094 --> 00:35:59.598 exhibiting DNA mismatch repair,

NOTE Confidence: 0.7920762

00:35:59.600 --> 00:36:03.464 which is a very small percentage of GM.

NOTE Confidence: 0.7920762

00:36:03.470 --> 00:36:05.200 A few studies have been

NOTE Confidence: 0.7920762

00:36:05.200 --> 00:36:06.930 done in the Checkmate 140.

NOTE Confidence: 0.7920762

00:36:06.930 --> 00:36:09.330 Three study of recurrent GBM treatment

NOTE Confidence: 0.7920762

00:36:09.330 --> 00:36:11.269 patients received either new volume

NOTE Confidence: 0.7920762

00:36:11.269 --> 00:36:13.493 AB Devo versus Bevis ISM at a vast.

NOTE Confidence: 0.7920762

00:36:13.500 --> 00:36:15.522 In an average survival time was

NOTE Confidence: 0.7920762

00:36:15.522 --> 00:36:17.411 equivalent in the clinical trial

NOTE Confidence: 0.7920762

00:36:17.411 --> 00:36:19.319 population approximately 10 months.

NOTE Confidence: 0.7920762

00:36:19.320 --> 00:36:20.704 Newly diagnosed tossed patients

NOTE Confidence: 0.7920762

00:36:20.704 --> 00:36:22.434 were also studied with Napoleon

NOTE Confidence: 0.7920762

00:36:22.434 --> 00:36:24.130 map with results forthcoming,

NOTE Confidence: 0.7920762

00:36:24.130 --> 00:36:26.377 but there doesn't seem to be a

NOTE Confidence: 0.7920762

00:36:26.377 --> 00:36:28.536 big impact overall for those study

NOTE Confidence: 0.7920762

00:36:28.536 --> 00:36:30.780 populations and then recently a study

NOTE Confidence: 0.7920762

00:36:30.780 --> 00:36:33.623 was looking at Pember Lizum app or

NOTE Confidence: 0.7920762

00:36:33.623 --> 00:36:35.625 keytruda treatment in patients with

NOTE Confidence: 0.7920762

00:36:35.625 --> 00:36:37.600 recurrent GBM that could receive

NOTE Confidence: 0.7920762

00:36:37.600 --> 00:36:39.952 surgery and impatience that entered the

NOTE Confidence: 0.7920762

00:36:39.952 --> 00:36:42.070 study and received Pember Lizum app

NOTE Confidence: 0.7920762

00:36:42.070 --> 00:36:44.477 along with surgery for recurrent G BM.

NOTE Confidence: 0.7920762

00:36:44.480 --> 00:36:46.888 Their average survival was 417 days versus

NOTE Confidence: 0.7920762

00:36:46.888 --> 00:36:49.459 228 days in patients that received.

NOTE Confidence: 0.7920762

00:36:49.460 --> 00:36:50.050 Keytruda alone,

NOTE Confidence: 0.7920762

00:36:50.050 --> 00:36:51.820 so this is in further development.

NOTE Confidence: 0.7920762

00:36:51.820 --> 00:36:54.502 We have a trial coming up at Yale which

NOTE Confidence: 0.7920762

00:36:54.502 --> 00:36:57.318 I believe Doctor Omuro will be talking

NOTE Confidence: 0.7920762

00:36:57.318 --> 00:37:00.768 about later in this talk about the strategy.

NOTE Confidence: 0.7920762

00:37:00.770 --> 00:37:03.146 And then for our patients critical

NOTE Confidence: 0.7920762

00:37:03.146 --> 00:37:04.730 factors of glioblastoma treatment

NOTE Confidence: 0.7920762

00:37:04.795 --> 00:37:06.631 are cortical steroid management

NOTE Confidence: 0.7920762

00:37:06.631 --> 00:37:08.467 and anti convulsant management.

NOTE Confidence: 0.7920762

00:37:08.470 --> 00:37:10.984 So cortical steroids like dexamethasone can

NOTE Confidence: 0.7920762

00:37:10.984 --> 00:37:14.040 be extremely helpful to treat brain swelling,

NOTE Confidence: 0.7920762

00:37:14.040 --> 00:37:15.776 make patients feel better,

NOTE Confidence: 0.7920762

00:37:15.776 --> 00:37:16.644 reduce neurological

NOTE Confidence: 0.7920762

00:37:16.644 --> 00:37:18.750 disabilities in the short term,

NOTE Confidence: 0.7920762

00:37:18.750 --> 00:37:21.306 but with long term steroid use.

NOTE Confidence: 0.7920762

00:37:21.310 --> 00:37:24.334 A number of adverse effects can happen

NOTE Confidence: 0.7920762

00:37:24.334 --> 00:37:27.310 due to hormonal changes in the body.

NOTE Confidence: 0.7920762

00:37:27.310 --> 00:37:29.450 Patients can develop diabetes fractures,

NOTE Confidence: 0.7920762

00:37:29.450 --> 00:37:30.226 bone weakness.

NOTE Confidence: 0.7920762

00:37:30.226 --> 00:37:31.778 And lethargy condition called

NOTE Confidence: 0.7920762

00:37:31.778 --> 00:37:32.554 adrenal insufficiency.

NOTE Confidence: 0.7920762

00:37:32.560 --> 00:37:33.565 So managing corticosteroids

NOTE Confidence: 0.7920762

00:37:33.565 --> 00:37:34.570 closely is important.

NOTE Confidence: 0.7920762

00:37:34.570 --> 00:37:36.915 Something I look at with every patient,

NOTE Confidence: 0.7920762

00:37:36.920 --> 00:37:37.662 every visit,

NOTE Confidence: 0.7920762

00:37:37.662 --> 00:37:38.404 every time.

NOTE Confidence: 0.7920762

00:37:38.404 --> 00:37:40.259 What dose of dexamethasone early

NOTE Confidence: 0.7920762

00:37:40.259 --> 00:37:42.897 on it cannot get them off and the

NOTE Confidence: 0.7920762

00:37:42.897 --> 00:37:44.835 usage of bevacizumab as a steroid

NOTE Confidence: 0.7920762

00:37:44.835 --> 00:37:46.998 sparing agent has come into the floor

NOTE Confidence: 0.7920762

00:37:47.000 --> 00:37:49.050 and neurooncology is quite helpful

NOTE Confidence: 0.7920762

00:37:49.050 --> 00:37:51.883 drug to get people off of steroids

NOTE Confidence: 0.7920762

00:37:51.883 --> 00:37:54.347 if they've been on for too long.

NOTE Confidence: 0.7920762

00:37:54.350 --> 00:37:56.132 And other features that we have

NOTE Confidence: 0.7920762

00:37:56.132 --> 00:37:58.488 in our brain tumor center that are

NOTE Confidence: 0.7920762

00:37:58.488 --> 00:38:00.328 critical for patients or counseling

NOTE Confidence: 0.7920762

00:38:00.328 --> 00:38:01.430 and social work.

NOTE Confidence: 0.7920762

00:38:01.430 --> 00:38:02.786 As doctor maternal mentioned,

NOTE Confidence: 0.7920762

00:38:02.786 --> 00:38:05.209 we hook up the patients with our

NOTE Confidence: 0.7920762

00:38:05.209 --> 00:38:06.819 navigator and work with them.

NOTE Confidence: 0.7920762

00:38:06.820 --> 00:38:08.818 Figure out disability for them and

NOTE Confidence: 0.7920762

00:38:08.818 --> 00:38:11.200 how to move forward with their life.

NOTE Confidence: 0.7920762

00:38:11.200 --> 00:38:12.775 After this is devastating diagnosis

NOTE Confidence: 0.7920762

00:38:12.775 --> 00:38:14.910 and I think about for patients,

NOTE Confidence: 0.7920762

00:38:14.910 --> 00:38:16.254 physical therapy rehab exercise

NOTE Confidence: 0.7920762

00:38:16.254 --> 00:38:17.934 in the role of nutrition.

NOTE Confidence: 0.8558438

00:38:21.020 --> 00:38:22.948 Alright, now let's just

NOTE Confidence: 0.8558438

00:38:22.948 --> 00:38:24.876 briefly talk on meningiomas.

NOTE Confidence: 0.8558438

00:38:24.880 --> 00:38:26.276 As doctor maternal mentioned,

NOTE Confidence: 0.8558438

00:38:26.276 --> 00:38:27.323 meningiomas are typically

NOTE Confidence: 0.8558438

00:38:27.323 --> 00:38:29.140 thought of as benign tumors,

NOTE Confidence: 0.8558438

00:38:29.140 --> 00:38:30.953 but they may not be booked benign

NOTE Confidence: 0.8558438

00:38:30.953 --> 00:38:33.725 in nature or they can cause pretty

NOTE Confidence: 0.8558438

00:38:33.725 --> 00:38:35.174 significant neurological disabilities.

NOTE Confidence: 0.8558438

00:38:35.180 --> 00:38:35.934 For patients.

NOTE Confidence: 0.8558438

00:38:35.934 --> 00:38:38.196 These tumors arise from the neoplastic

NOTE Confidence: 0.8558438

00:38:38.196 --> 00:38:40.285 transformation of arachnoid cap cells and

NOTE Confidence: 0.8558438

00:38:40.285 --> 00:38:42.630 typically are identified as a solid nodule,

NOTE Confidence: 0.8558438

00:38:42.630 --> 00:38:44.146 which may be calcified.

NOTE Confidence: 0.8558438

00:38:44.146 --> 00:38:46.041 There's three grades historically have

NOTE Confidence: 0.8558438

00:38:46.041 --> 00:38:47.955 meningiomas Grade 1, two, and three,

NOTE Confidence: 0.8558438

00:38:47.955 --> 00:38:49.730 but as doctor maternal mentioned,

NOTE Confidence: 0.8558438

00:38:49.730 --> 00:38:52.068 we now know that based on the

NOTE Confidence: 0.8558438

00:38:52.068 --> 00:38:53.640 genomics of these tumors,

NOTE Confidence: 0.8558438

00:38:53.640 --> 00:38:56.678 tumors that appear to be grade one.

NOTE Confidence: 0.8558438

00:38:56.680 --> 00:38:58.200 Mythology may actually act

NOTE Confidence: 0.8558438

00:38:58.200 --> 00:39:00.100 in a more malignant fashion,

NOTE Confidence: 0.8558438

00:39:00.100 --> 00:39:02.380 like a grade two tumor or

NOTE Confidence: 0.8558438

00:39:02.380 --> 00:39:03.520 even more significant.

NOTE Confidence: 0.8558438

00:39:03.520 --> 00:39:05.800 So I drew some arrows here.

NOTE Confidence: 0.8558438

00:39:05.800 --> 00:39:07.320 the Red Arrows pointing

NOTE Confidence: 0.8558438

00:39:07.320 --> 00:39:08.840 at a small meningioma,

NOTE Confidence: 0.8558438

00:39:08.840 --> 00:39:10.360 the Blue arrows pointing

NOTE Confidence: 0.8558438

00:39:10.360 --> 00:39:11.880 at a large meningioma.

NOTE Confidence: 0.8558438

00:39:11.880 --> 00:39:13.780 Small and asymptomatic meningiomas may

NOTE Confidence: 0.8558438

00:39:13.780 --> 00:39:15.680 not need treatment beyond observation,

NOTE Confidence: 0.8558438

00:39:15.680 --> 00:39:17.200 but large meningioma is

NOTE Confidence: 0.8558438

00:39:17.200 --> 00:39:18.340 typically caused symptoms.

NOTE Confidence: 0.8558438

00:39:18.340 --> 00:39:19.860 Those are symptomatic meningiomas,

NOTE Confidence: 0.8558438

00:39:19.860 --> 00:39:21.380 and those require treatment.

NOTE Confidence: 0.8558438

00:39:21.380 --> 00:39:23.148 Neurosurgical intervention being the

NOTE Confidence: 0.8558438

00:39:23.148 --> 00:39:25.358 primary treatment modality and then

NOTE Confidence: 0.8558438

00:39:25.358 --> 00:39:27.050 radiation therapy being the 2nd.

NOTE Confidence: 0.8558438

00:39:27.050 --> 00:39:29.560 Treatment modality.

NOTE Confidence: 0.8558438

00:39:29.560 --> 00:39:31.720 So if patients have exhausted

NOTE Confidence: 0.8558438

00:39:31.720 --> 00:39:33.448 surgical and radiation treatment

NOTE Confidence: 0.8558438

00:39:33.448 --> 00:39:35.547 modalities but still are in good

NOTE Confidence: 0.8558438

00:39:35.547 --> 00:39:37.593 enough condition to undergo some kind

NOTE Confidence: 0.8558438

00:39:37.593 --> 00:39:39.518 of further tumor directed therapy,

NOTE Confidence: 0.8558438

00:39:39.520 --> 00:39:41.048 medical therapies could be

NOTE Confidence: 0.8558438

00:39:41.048 --> 00:39:42.194 considered for treatment.

NOTE Confidence: 0.8558438

00:39:42.200 --> 00:39:44.354 We can look at their genomic

NOTE Confidence: 0.8558438

00:39:44.354 --> 00:39:47.076 analysis and see if in fact there

NOTE Confidence: 0.8558438

00:39:47.076 --> 00:39:49.086 may be a targetable mutation,

NOTE Confidence: 0.8558438

00:39:49.090 --> 00:39:51.370 such as the small mutation which

NOTE Confidence: 0.8558438

00:39:51.370 --> 00:39:53.334 hedgehog pathway drugs may have

NOTE Confidence: 0.8558438

00:39:53.334 --> 00:39:55.596 some effect in that's being studied,

NOTE Confidence: 0.8558438

00:39:55.600 --> 00:39:57.760 and then recently a paper was

NOTE Confidence: 0.8558438

00:39:57.760 --> 00:40:00.319 published looking at a combination of.

NOTE Confidence: 0.8558438

00:40:00.320 --> 00:40:02.624 Everolimus in octreotide so is the

NOTE Confidence: 0.8558438

00:40:02.624 --> 00:40:05.079 phase two servorum study and in

NOTE Confidence: 0.8558438

00:40:05.079 --> 00:40:07.194 this study approximately half the

NOTE Confidence: 0.8558438

00:40:07.194 --> 00:40:09.293 patients had progression free survival

NOTE Confidence: 0.8558438

00:40:09.293 --> 00:40:11.939 after a year which is better than

NOTE Confidence: 0.8558438

00:40:11.939 --> 00:40:14.120 historical trends for this patient

NOTE Confidence: 0.8558438

00:40:14.120 --> 00:40:15.920 population and Pembrolizumab also

NOTE Confidence: 0.8558438

00:40:15.920 --> 00:40:18.487 exists again for tumors that may

NOTE Confidence: 0.8558438

00:40:18.487 --> 00:40:20.487 have mismatch repair deficiency and.

NOTE Confidence: 0.8558438

00:40:20.490 --> 00:40:22.565 I manage patients with newer

NOTE Confidence: 0.8558438

00:40:22.565 --> 00:40:24.640 anticonvulsant drugs such as Lacosamide,

NOTE Confidence: 0.8558438

00:40:24.640 --> 00:40:25.052 Verace,

NOTE Confidence: 0.8558438

00:40:25.052 --> 00:40:26.288 Tam and others,

NOTE Confidence: 0.8558438

00:40:26.288 --> 00:40:28.348 and these drugs have less

NOTE Confidence: 0.8558438

00:40:28.348 --> 00:40:30.790 side effects than the older

NOTE Confidence: 0.8558438

00:40:30.790 --> 00:40:33.230 anticonvulsants like Deppe Code or

NOTE Confidence: 0.8558438

00:40:33.230 --> 00:40:35.859 finito and better seizure control.

NOTE Confidence: 0.8558438

00:40:35.860 --> 00:40:36.259 Alright,

NOTE Confidence: 0.8558438

00:40:36.259 --> 00:40:39.052 I think at that point conclude my

NOTE Confidence: 0.8558438

00:40:39.052 --> 00:40:42.450 talk and pass the Doctor Bindra in

NOTE Confidence: 0.8558438

00:40:42.450 --> 00:40:44.466 our radiation oncology division.

NOTE Confidence: 0.88751155

00:40:53.150 --> 00:40:56.498 OK, can you folks hear me?

NOTE Confidence: 0.88751155

00:40:56.500 --> 00:40:58.468 Wonderful OK, well thanks so much.

NOTE Confidence: 0.88751155

00:40:58.470 --> 00:41:00.780 A wonderful series of talks and I'm

NOTE Confidence: 0.88751155

00:41:00.780 --> 00:41:03.390 going to tell you a little bit today.

NOTE Confidence: 0.88751155

00:41:03.390 --> 00:41:05.822 An update on some of what we're doing

NOTE Confidence: 0.88751155

00:41:05.822 --> 00:41:07.888 in radiation oncology as it relates

NOTE Confidence: 0.88751155

00:41:07.888 --> 00:41:09.950 to primary brain tumors and recognize

NOTE Confidence: 0.88751155

00:41:09.950 --> 00:41:12.164 that we have a diverse audience of

NOTE Confidence: 0.88751155

00:41:12.164 --> 00:41:14.540 Physicians as well as patients as well.

NOTE Confidence: 0.88751155

00:41:14.540 --> 00:41:17.560 And so thank you so much for coming here.

NOTE Confidence: 0.88751155

00:41:17.560 --> 00:41:19.630 My disclosures will not be talking

NOTE Confidence: 0.88751155

00:41:19.699 --> 00:41:21.100 about any of these companies

NOTE Confidence: 0.88751155

00:41:21.100 --> 00:41:22.390 that I've recently started,

NOTE Confidence: 0.88751155

00:41:22.390 --> 00:41:24.994 but really just dive dive right into it

NOTE Confidence: 0.88751155

00:41:24.994 --> 00:41:27.157 so we'll start with some advantages and

NOTE Confidence: 0.88751155

00:41:27.157 --> 00:41:28.968 new approaches in radiation therapy.

NOTE Confidence: 0.88751155

00:41:28.970 --> 00:41:29.514 It's Milo.

NOTE Confidence: 0.88751155

00:41:29.514 --> 00:41:32.077 Then move on and tell you a little bit

NOTE Confidence: 0.88751155

00:41:32.077 --> 00:41:34.033 about Proton Therapy and it's hopefully

NOTE Confidence: 0.88751155

00:41:34.033 --> 00:41:37.070 soon to be arriving planning on the horizon,

NOTE Confidence: 0.88751155

00:41:37.070 --> 00:41:39.770 and then we'll end with a little bit of

NOTE Confidence: 0.88751155

00:41:39.770 --> 00:41:42.386 work that I also do in the laboratory.

NOTE Confidence: 0.88751155

00:41:42.390 --> 00:41:44.980 I spent about half my time running

NOTE Confidence: 0.88751155

00:41:44.980 --> 00:41:47.988 at a Glioma lab trying to translate

NOTE Confidence: 0.88751155

00:41:47.988 --> 00:41:49.800 work into the clinic.

NOTE Confidence: 0.88751155

00:41:49.800 --> 00:41:51.610 So a few interesting technologies

NOTE Confidence: 0.88751155

00:41:51.610 --> 00:41:53.420 that have been really progressing

NOTE Confidence: 0.88751155

00:41:53.475 --> 00:41:55.419 and developing quite nicely at Yale.

NOTE Confidence: 0.88751155

00:41:55.420 --> 00:41:57.556 We are very actively using something

NOTE Confidence: 0.88751155

00:41:57.556 --> 00:41:59.371 called the novelis exact track

NOTE Confidence: 0.88751155

00:41:59.371 --> 00:42:00.679 system for CNS tumors,

NOTE Confidence: 0.88751155

00:42:00.680 --> 00:42:03.551 and this is just a a schematic of the

NOTE Confidence: 0.88751155

00:42:03.551 --> 00:42:05.598 instrument showing the patient here.

NOTE Confidence: 0.88751155

00:42:05.600 --> 00:42:07.700 This is a 6 degree couch,

NOTE Confidence: 0.88751155

00:42:07.700 --> 00:42:09.842 which means that 6 degrees of

NOTE Confidence: 0.88751155

74

00:42:09.842 --> 00:42:11.909 freedom can move side to side,

NOTE Confidence: 0.88751155

00:42:11.910 --> 00:42:14.952 front to back and then can actually tilt and

NOTE Confidence: 0.88751155

00:42:14.952 --> 00:42:17.525 actually has imaging sources that come out.

NOTE Confidence: 0.88751155

00:42:17.530 --> 00:42:19.390 We call orthogonal angles at.

NOTE Confidence: 0.88751155

00:42:19.390 --> 00:42:20.614 And they can.

NOTE Confidence: 0.88751155

00:42:20.614 --> 00:42:23.470 They can be repeated to get very,

NOTE Confidence: 0.88751155

00:42:23.470 --> 00:42:24.286 very close,

NOTE Confidence: 0.88751155

00:42:24.286 --> 00:42:25.918 accurate delineation of the

NOTE Confidence: 0.88751155

00:42:25.918 --> 00:42:27.550 treatment area during treatment.

NOTE Confidence: 0.88751155

00:42:27.550 --> 00:42:30.374 And this is sort of just a little

NOTE Confidence: 0.88751155

00:42:30.374 --> 00:42:33.434 snapshot of the images that we get

NOTE Confidence: 0.88751155

00:42:33.434 --> 00:42:35.709 from those orthogonal cavey images.

NOTE Confidence: 0.88751155

00:42:35.710 --> 00:42:37.750 And we actually have automated

NOTE Confidence: 0.88751155

00:42:37.750 --> 00:42:38.566 alignment algorithms,

NOTE Confidence: 0.88751155

00:42:38.570 --> 00:42:41.434 so we can actually get down to about

NOTE Confidence: 0.88751155

00:42:41.434 --> 00:42:44.028 .3 millimeters of accuracy within a

NOTE Confidence: 0.88751155

00:42:44.028 --> 00:42:46.728 framless system using the novelis platform.

NOTE Confidence: 0.88751155

00:42:46.730 --> 00:42:47.147 Yeah,

NOTE Confidence: 0.88751155

00:42:47.147 --> 00:42:50.900 we're able to treat a very wide range of.

NOTE Confidence: 0.88751155

00:42:50.900 --> 00:42:52.070 Primary CNS tumors,

NOTE Confidence: 0.88751155

00:42:52.070 --> 00:42:53.630 as well as metastases,

NOTE Confidence: 0.88751155

00:42:53.630 --> 00:42:56.087 and these are just some heat map

NOTE Confidence: 0.88751155

00:42:56.087 --> 00:42:58.309 showing incredible of focused delivery.

NOTE Confidence: 0.88751155

00:42:58.310 --> 00:43:00.260 Sparing areas like the spinal

NOTE Confidence: 0.88751155

00:43:00.260 --> 00:43:02.210 cord and then shown here.

NOTE Confidence: 0.88751155

00:43:02.210 --> 00:43:05.770 Critical areas like the brainstem.

NOTE Confidence: 0.88751155

00:43:05.770 --> 00:43:06.601 Are in parallel.

NOTE Confidence: 0.88751155

00:43:06.601 --> 00:43:09.004 We also have a very active gamma knife

NOTE Confidence: 0.88751155

00:43:09.004 --> 00:43:11.428 radiosurgery program and a doctor moliterno,

NOTE Confidence: 0.88751155

00:43:11.430 --> 00:43:13.095 and the team here are

NOTE Confidence: 0.88751155

00:43:13.095 --> 00:43:14.760 involved with this as well,

NOTE Confidence: 0.88751155

00:43:14.760 --> 00:43:16.752 but this program is led by

NOTE Confidence: 0.88751155

00:43:16.752 --> 00:43:18.420 doctor Chang and doctor you,

NOTE Confidence: 0.88751155

00:43:18.420 --> 00:43:20.418 and it's really a fabulous program,

NOTE Confidence: 0.88751155

00:43:20.420 --> 00:43:22.876 and it's great to see it evolve over

NOTE Confidence: 0.88751155

00:43:22.876 --> 00:43:25.576 the last 20 years I was actually a

NOTE Confidence: 0.88751155

00:43:25.576 --> 00:43:28.078 medical student here in the early 2000s,

NOTE Confidence: 0.88751155

00:43:28.080 --> 00:43:30.078 and I've seen this program grow.

NOTE Confidence: 0.88751155

00:43:30.080 --> 00:43:32.078 For those of you that don't

NOTE Confidence: 0.88751155

00:43:32.078 --> 00:43:33.410 know the gamma knife,

NOTE Confidence: 0.88751155

00:43:33.410 --> 00:43:35.797 essentially about 200 sources of pencil beam.

NOTE Confidence: 0.88751155

00:43:35.800 --> 00:43:37.164 Radiation there are focused

NOTE Confidence: 0.88751155

00:43:37.164 --> 00:43:38.528 right on the tumor,

NOTE Confidence: 0.88751155

00:43:38.530 --> 00:43:41.599 and by doing that we can achieve a very,

NOTE Confidence: 0.88751155

00:43:41.600 --> 00:43:42.960 very significant steep dose.

NOTE Confidence: 0.88751155

00:43:42.960 --> 00:43:43.912 Dropoffs shown here,

NOTE Confidence: 0.88751155

00:43:43.912 --> 00:43:46.360 and we can treat tumors that are 1

NOTE Confidence: 0.88751155

00:43:46.430 --> 00:43:49.198 millimeter if not and or areas that are

NOTE Confidence: 0.88751155

00:43:49.198 --> 00:43:51.487 1 millimeter or smaller in patients,

NOTE Confidence: 0.88751155

00:43:51.490 --> 00:43:53.125 and this is typically using

NOTE Confidence: 0.88751155

00:43:53.125 --> 00:43:54.760 a frame that we have

NOTE Confidence: 0.85831267

00:43:54.829 --> 00:43:56.257 fixed to the patient.

NOTE Confidence: 0.85831267

00:43:56.260 --> 00:43:58.346 But you'll notice in this picture we

NOTE Confidence: 0.85831267

00:43:58.346 --> 00:44:01.029 have a new instrument called the icon,

NOTE Confidence: 0.85831267

00:44:01.030 --> 00:44:02.740 and that's actually shown here.

NOTE Confidence: 0.85831267

00:44:02.740 --> 00:44:06.230 This is just set up over the last two years.

NOTE Confidence: 0.85831267

00:44:06.230 --> 00:44:08.379 And this is really state of the

NOTE Confidence: 0.85831267

00:44:08.379 --> 00:44:10.420 art radiosurgery at Yale and using

NOTE Confidence: 0.85831267

00:44:10.420 --> 00:44:11.820 this technology were actually

NOTE Confidence: 0.85831267

00:44:11.820 --> 00:44:13.670 able to treat patients without

NOTE Confidence: 0.85831267

00:44:13.670 --> 00:44:15.884 a surgical placement of a frame.

NOTE Confidence: 0.85831267

00:44:15.890 --> 00:44:18.650 So these patients can lie in the table,

NOTE Confidence: 0.85831267

00:44:18.650 --> 00:44:20.720 have a mass placed on them,

NOTE Confidence: 0.85831267

00:44:20.720 --> 00:44:22.708 and have a little bit more freedom

NOTE Confidence: 0.85831267

00:44:22.708 --> 00:44:24.498 to move while still maintaining

NOTE Confidence: 0.85831267

00:44:24.498 --> 00:44:26.238 a very accurate treatment.

NOTE Confidence: 0.85831267

00:44:26.240 --> 00:44:29.000 So what sort of treatments do we do?

NOTE Confidence: 0.85831267

00:44:29.000 --> 00:44:30.730 We do with these technologies,

NOTE Confidence: 0.85831267

00:44:30.730 --> 00:44:32.753 so we can really treat all sorts

NOTE Confidence: 0.85831267

00:44:32.753 --> 00:44:34.570 of primary and brain metastases

NOTE Confidence: 0.85831267

00:44:34.570 --> 00:44:35.899 with this approach.

NOTE Confidence: 0.85831267

00:44:35.900 --> 00:44:37.748 We do treat Glioma both newly

NOTE Confidence: 0.85831267

00:44:37.748 --> 00:44:39.485 diagnosed in recurrence with these

NOTE Confidence: 0.85831267

00:44:39.485 --> 00:44:40.838 technologies and modalities.

NOTE Confidence: 0.85831267

00:44:40.840 --> 00:44:42.600 Meningiomas as we just heard

NOTE Confidence: 0.85831267

00:44:42.600 --> 00:44:43.656 about acoustic schwannomas,

NOTE Confidence: 0.85831267

00:44:43.660 --> 00:44:45.766 we also treat pediatric brain tumors,

NOTE Confidence: 0.85831267

00:44:45.770 --> 00:44:47.710 especially when we're very concerned

NOTE Confidence: 0.85831267

00:44:47.710 --> 00:44:49.650 about dose exposures in critical

NOTE Confidence: 0.85831267

00:44:49.711 --> 00:44:51.397 areas as well as re radiation,

NOTE Confidence: 0.85831267

00:44:51.400 --> 00:44:53.195 brain metastases and other non

NOTE Confidence: 0.85831267

00:44:53.195 --> 00:44:54.631 cancer indications like trigeminal

NOTE Confidence: 0.85831267

00:44:54.631 --> 00:44:55.619 neuralgia for example.

NOTE Confidence: 0.85831267

00:44:55.620 --> 00:44:57.732 These are just two case studies

NOTE Confidence: 0.85831267

00:44:57.732 --> 00:44:58.788 from our practice.

NOTE Confidence: 0.85831267

00:44:58.790 --> 00:45:01.246 This is a 56 year old female with

NOTE Confidence: 0.85831267

00:45:01.246 --> 00:45:03.672 a grade one meningioma who had

NOTE Confidence: 0.85831267

00:45:03.672 --> 00:45:05.842 a wonderful section but wasn't

NOTE Confidence: 0.85831267

00:45:05.842 --> 00:45:08.447 safe to remove all of it and so

NOTE Confidence: 0.85831267

00:45:08.447 --> 00:45:10.806 we're able to come in with their

NOTE Confidence: 0.85831267

00:45:10.806 --> 00:45:12.626 ultra precise novelis exact track.

NOTE Confidence: 0.85831267

00:45:12.630 --> 00:45:14.328 Approach and using a rapid or

NOTE Confidence: 0.85831267

00:45:14.328 --> 00:45:15.812 conformal plan that we generated

NOTE Confidence: 0.85831267

00:45:15.812 --> 00:45:17.870 you can see here the dose outline

NOTE Confidence: 0.85831267

00:45:17.870 --> 00:45:19.965 that we're able to avoid a lot

NOTE Confidence: 0.85831267

00:45:19.965 --> 00:45:21.125 of very critical structures,

NOTE Confidence: 0.85831267

00:45:21.130 --> 00:45:23.146 such as things like the optic apparatus

NOTE Confidence: 0.85831267

00:45:23.146 --> 00:45:25.516 as well as other parts of the brain.

NOTE Confidence: 0.85831267

00:45:25.520 --> 00:45:27.864 So this is really a very useful technique,

NOTE Confidence: 0.85831267

00:45:27.870 --> 00:45:29.330 and again a framless approach

NOTE Confidence: 0.85831267

00:45:29.330 --> 00:45:30.206 for precision radiation.

NOTE Confidence: 0.85831267

00:45:30.210 --> 00:45:31.580 Here is just another example

NOTE Confidence: 0.85831267

00:45:31.580 --> 00:45:33.730 of how we use the gamma knife,

NOTE Confidence: 0.85831267

00:45:33.730 --> 00:45:35.190 and this is brain metastases.

NOTE Confidence: 0.85831267

00:45:35.190 --> 00:45:37.332 This is a 64 year old female with a

NOTE Confidence: 0.85831267

00:45:37.332 --> 00:45:39.346 new newly diagnosed non small cell

NOTE Confidence: 0.85831267

00:45:39.346 --> 00:45:41.732 lung cancer who was found to have

NOTE Confidence: 0.85831267

00:45:41.732 --> 00:45:44.172 brain brain Mets at the time of diagnosis.

NOTE Confidence: 0.85831267

00:45:44.180 --> 00:45:46.014 When you look at the scan you

NOTE Confidence: 0.85831267

00:45:46.014 --> 00:45:47.371 would you immediately think that

NOTE Confidence: 0.85831267

00:45:47.371 --> 00:45:49.170 this patient needs to go to whole

NOTE Confidence: 0.85831267

00:45:49.170 --> 00:45:50.409 brain radiation therapy.

NOTE Confidence: 0.85831267

00:45:50.410 --> 00:45:52.384 This for the clinicians in the room,

NOTE Confidence: 0.85831267

00:45:52.390 --> 00:45:54.004 and certainly that would be a

NOTE Confidence: 0.85831267

00:45:54.004 --> 00:45:55.500 reasonable approach for this patient.

NOTE Confidence: 0.85831267

00:45:55.500 --> 00:45:57.420 But recognizing the amino therapies and

NOTE Confidence: 0.85831267

00:45:57.420 --> 00:45:59.012 all the targeted therapies question

NOTE Confidence: 0.85831267

00:45:59.012 --> 00:46:00.846 is whether we could treat with a

NOTE Confidence: 0.85831267

00:46:00.846 --> 00:46:02.704 more focused approach if there is a

NOTE Confidence: 0.85831267

00:46:02.704 --> 00:46:04.554 chance for longer survival for this patient.

NOTE Confidence: 0.85831267

00:46:04.554 --> 00:46:06.246 And that's exactly what we did.

NOTE Confidence: 0.85831267

00:46:06.250 --> 00:46:07.944 This is a case from doctor Chang

NOTE Confidence: 0.85831267

00:46:07.944 --> 00:46:10.253 or chain went in and just as doctor

NOTE Confidence: 0.85831267

00:46:10.253 --> 00:46:11.473 maternus present that wonderful

NOTE Confidence: 0.85831267

00:46:11.473 --> 00:46:13.580 case earlier of a lesion that was

NOTE Confidence: 0.85831267

00:46:13.580 --> 00:46:15.023 affecting the speech shown here.

NOTE Confidence: 0.85831267

00:46:15.023 --> 00:46:16.721 And then a large lesion causing

NOTE Confidence: 0.85831267

00:46:16.721 --> 00:46:18.952 a lot of Mass Effect, shown here.

NOTE Confidence: 0.85831267

00:46:18.952 --> 00:46:21.280 She was able to reset those critical lesions,

NOTE Confidence: 0.85831267

00:46:21.280 --> 00:46:23.184 and that's again shown by the arrows

NOTE Confidence: 0.85831267

00:46:23.184 --> 00:46:24.975 and then actually use that frame

NOTE Confidence: 0.85831267

00:46:24.975 --> 00:46:26.515 based single fraction gamma knife.

NOTE Confidence: 0.85831267

00:46:26.520 --> 00:46:28.422 So single fraction radiation to the

NOTE Confidence: 0.85831267

00:46:28.422 --> 00:46:30.519 smaller lesions that were there as well

NOTE Confidence: 0.85831267

00:46:30.519 --> 00:46:32.332 as the cavity of the respected area.

NOTE Confidence: 0.85831267

00:46:32.340 --> 00:46:33.536 But recognizing these other

NOTE Confidence: 0.85831267

00:46:33.536 --> 00:46:35.330 areas need to be treated like

NOTE Confidence: 0.842033

00:46:35.385 --> 00:46:36.120 this and this,

NOTE Confidence: 0.842033

00:46:36.120 --> 00:46:38.157 but their larger were then able to.

NOTE Confidence: 0.842033

00:46:38.160 --> 00:46:40.040 She was then able to use the icon

00:46:40.040 --> 00:46:41.542 system to deliver 5 fractions

00:46:41.542 --> 00:46:42.834 in a hypofractionated manner

00:46:42.834 --> 00:46:44.850 to some of these other areas.

00:46:44.850 --> 00:46:47.178 Where would be more safer to use that?

00:46:47.180 --> 00:46:48.360 So really an excellent.

00:46:48.360 --> 00:46:50.536 Example of how we use all these

00:46:50.536 --> 00:46:52.251 new modalities to really push

00:46:52.251 --> 00:46:54.613 the envelope and what we can do

00:46:54.613 --> 00:46:56.153 for patients with brain tumors.

00:46:56.160 --> 00:46:58.464 This is just for the clinicians in the

00:46:58.464 --> 00:47:00.339 room showing the dose distribution.

00:47:00.340 --> 00:47:02.370 We get very very nice dose drop

00:47:02.370 --> 00:47:04.190 off using this this approach.

00:47:04.190 --> 00:47:04.985 So moving along.

00:47:04.985 --> 00:47:06.840 Just want to tell you a little

00:47:06.898 --> 00:47:08.728 bit about Proton Therapy again

NOTE Confidence: 0.842033

00:47:08.728 --> 00:47:10.558 recognizing their patients as well

NOTE Confidence: 0.842033

00:47:10.622 --> 00:47:12.536 as caregivers on the call tonight.

NOTE Confidence: 0.842033

00:47:12.540 --> 00:47:14.065 So protons are a fascinating

NOTE Confidence: 0.842033

00:47:14.065 --> 00:47:16.327 modality as some of you may know

NOTE Confidence: 0.842033

00:47:16.327 --> 00:47:17.667 convectional entered xrays which

NOTE Confidence: 0.842033

00:47:17.667 --> 00:47:20.008 we use for most of our patients.

NOTE Confidence: 0.842033

00:47:20.010 --> 00:47:21.753 A really good and I showed you

NOTE Confidence: 0.842033

00:47:21.753 --> 00:47:23.115 those focused plans of treating

NOTE Confidence: 0.842033

00:47:23.115 --> 00:47:24.795 the tumor over the normal tissue,

NOTE Confidence: 0.842033

00:47:24.800 --> 00:47:26.110 but they still have something

NOTE Confidence: 0.842033

00:47:26.110 --> 00:47:27.735 we call exit dose and that's

NOTE Confidence: 0.842033

00:47:27.735 --> 00:47:29.319 shown by the tumor area here.

NOTE Confidence: 0.842033

00:47:29.320 --> 00:47:30.910 But the exit dose for the

NOTE Confidence: 0.842033

00:47:30.910 --> 00:47:31.705 radiation doesn't stop.

NOTE Confidence: 0.842033

00:47:31.710 --> 00:47:32.774 Protons have something very

NOTE Confidence: 0.842033

00:47:32.774 --> 00:47:34.104 fasting called a Bragg Peak,

NOTE Confidence: 0.842033

00:47:34.110 --> 00:47:35.455 and essentially you're throwing dose

NOTE Confidence: 0.842033

00:47:35.455 --> 00:47:37.368 at the tumor in it stopped right

NOTE Confidence: 0.842033

00:47:37.368 --> 00:47:39.160 at the edge of that tumor margin.

NOTE Confidence: 0.842033

00:47:39.160 --> 00:47:39.425 OK,

NOTE Confidence: 0.842033

00:47:39.425 --> 00:47:41.015 and just showing you that again

NOTE Confidence: 0.842033

00:47:41.015 --> 00:47:42.380 that the different with the

NOTE Confidence: 0.842033

00:47:42.380 --> 00:47:43.675 more schematic of a patient.

NOTE Confidence: 0.842033

00:47:43.680 --> 00:47:45.192 You can see a little bit

NOTE Confidence: 0.842033

00:47:45.192 --> 00:47:46.879 of exit dose for the tumor.

NOTE Confidence: 0.842033

00:47:46.880 --> 00:47:48.572 But then when you have a

NOTE Confidence: 0.842033

00:47:48.572 --> 00:47:50.040 proton based approach you have.

NOTE Confidence: 0.842033

00:47:50.040 --> 00:47:51.937 Complete drop off of the dose of

NOTE Confidence: 0.842033

00:47:51.937 --> 00:47:53.722 very very nice to add advantages

NOTE Confidence: 0.842033

00:47:53.722 --> 00:47:55.237 for a variety of tumors.

NOTE Confidence: 0.842033

00:47:55.240 --> 00:47:55.856 In particular,

NOTE Confidence: 0.842033

00:47:55.856 --> 00:47:57.704 I'm one of the pediatric brain

NOTE Confidence: 0.842033

00:47:57.704 --> 00:47:59.250 tumor doctors radox here and this

NOTE Confidence: 0.842033

00:47:59.250 --> 00:48:00.949 is a plan what we call crane's

NOTE Confidence: 0.842033

00:48:00.949 --> 00:48:02.923 final radiation and this is a

NOTE Confidence: 0.842033

00:48:02.923 --> 00:48:04.490 pediatric megill blastoma and this

NOTE Confidence: 0.842033

00:48:04.490 --> 00:48:05.940 is our normal conventional plan.

NOTE Confidence: 0.842033

00:48:05.940 --> 00:48:07.830 This is the standard of care and

NOTE Confidence: 0.842033

00:48:07.830 --> 00:48:10.057 you can see there's a lot of exit

NOTE Confidence: 0.842033

00:48:10.057 --> 00:48:12.100 dose here and at first glance you

NOTE Confidence: 0.842033

00:48:12.100 --> 00:48:13.978 think maybe just the abdomen would

NOTE Confidence: 0.842033

00:48:13.978 --> 00:48:16.338 be at risk but you can see here.

NOTE Confidence: 0.842033

00:48:16.340 --> 00:48:18.503 Actually it's the heart that we worry

NOTE Confidence: 0.842033

00:48:18.503 --> 00:48:20.618 bout for patients that could live for.

NOTE Confidence: 0.842033

00:48:20.620 --> 00:48:22.612 5060 years depending on their age

NOTE Confidence: 0.842033

00:48:22.612 --> 00:48:24.357 and using proton based radiotherapy

NOTE Confidence: 0.842033

00:48:24.357 --> 00:48:26.807 you can see that we're able to

NOTE Confidence: 0.842033

00:48:26.807 --> 00:48:28.761 completely stop the dose into

NOTE Confidence: 0.842033

00:48:28.761 --> 00:48:29.949 those critical structures,

NOTE Confidence: 0.842033

00:48:29.950 --> 00:48:33.190 and this is a slide from doctor Ken Roberts,

NOTE Confidence: 0.842033

00:48:33.190 --> 00:48:35.122 who leads who's leading our proton

NOTE Confidence: 0.842033

00:48:35.122 --> 00:48:37.130 plan development plan in Connecticut,

NOTE Confidence: 0.842033

00:48:37.130 --> 00:48:38.570 along with other folks.

NOTE Confidence: 0.842033

00:48:38.570 --> 00:48:40.370 So where are with protons?

NOTE Confidence: 0.842033

00:48:40.370 --> 00:48:42.470 So just at one slide to show

NOTE Confidence: 0.842033

00:48:42.470 --> 00:48:45.086 that it is coming soon we have

NOTE Confidence: 0.842033

00:48:45.086 --> 00:48:47.126 a certificate of need that's

NOTE Confidence: 0.842033

00:48:47.126 --> 00:48:49.700 been filed or about to be filed.

NOTE Confidence: 0.842033

00:48:49.700 --> 00:48:51.896 Rather we believe that within about

NOTE Confidence: 0.842033

00:48:51.896 --> 00:48:54.729 21 to 24 months will have the IBA.

NOTE Confidence: 0.842033

00:48:54.730 --> 00:48:55.242 Proteus one.

NOTE Confidence: 0.842033

00:48:55.242 --> 00:48:57.290 This is one of the state of the

NOTE Confidence: 0.842033

00:48:57.354 --> 00:48:59.219 art pencil beam scanning Proton.

NOTE Confidence: 0.842033

00:48:59.220 --> 00:49:00.988 I am RT devices will be able to

NOTE Confidence: 0.842033

00:49:00.988 --> 00:49:02.642 offer that and we're doing that

NOTE Confidence: 0.842033

00:49:02.642 --> 00:49:04.087 in collaboration with the folks

NOTE Confidence: 0.842033

00:49:04.087 --> 00:49:05.490 at Hartford Healthcare.

NOTE Confidence: 0.842033

00:49:05.490 --> 00:49:07.194 So do stay tuned really excited

NOTE Confidence: 0.842033

00:49:07.194 --> 00:49:08.046 about these developments.

NOTE Confidence: 0.8219234

00:49:08.050 --> 00:49:09.190 In the meantime though,

NOTE Confidence: 0.8219234

00:49:09.190 --> 00:49:11.755 we have a lot of patients that will need

NOTE Confidence: 0.8219234

00:49:11.755 --> 00:49:13.465 Craignish final radiation of various ages,

NOTE Confidence: 0.8219234

00:49:13.470 --> 00:49:16.599 and they might not be able to go up to a

NOTE Confidence: 0.8219234

00:49:16.599 --> 00:49:18.598 proton facility in New York or Boston.

NOTE Confidence: 0.8219234

00:49:18.598 --> 00:49:20.586 We certainly send them when we can,

NOTE Confidence: 0.8219234

00:49:20.590 --> 00:49:22.102 and at yeah, what we've been

NOTE Confidence: 0.8219234

00:49:22.102 --> 00:49:23.730 able to do a recently.

NOTE Confidence: 0.8219234

00:49:23.730 --> 00:49:26.194 Really this is Ken Roberts in our Department.

NOTE Confidence: 0.8219234

00:49:26.200 --> 00:49:28.335 Has developed a protocol for V Matt

NOTE Confidence: 0.8219234

00:49:28.335 --> 00:49:29.658 Rapidarc Crane, Espona radiation,

NOTE Confidence: 0.8219234

00:49:29.658 --> 00:49:31.782 and this essentially using those photon

NOTE Confidence: 0.8219234

00:49:31.782 --> 00:49:33.823 plans that I showed you earlier and

NOTE Confidence: 0.8219234

00:49:33.823 --> 00:49:35.990 using the dynamic arc to sculpt the beam,

NOTE Confidence: 0.8219234

00:49:35.990 --> 00:49:38.438 and this is what a conventional Crane is.

NOTE Confidence: 0.8219234

00:49:38.440 --> 00:49:39.970 Final plan would look like

NOTE Confidence: 0.8219234

00:49:39.970 --> 00:49:41.500 like I showed you earlier,

NOTE Confidence: 0.8219234

00:49:41.500 --> 00:49:43.764 but using the map you can see we

NOTE Confidence: 0.8219234

00:49:43.764 --> 00:49:45.779 actually get a pretty good sparing,

NOTE Confidence: 0.8219234

00:49:45.780 --> 00:49:47.789 although we have a lower dose path

NOTE Confidence: 0.8219234

00:49:47.789 --> 00:49:49.760 that I'm not showing you here,

NOTE Confidence: 0.8219234

00:49:49.760 --> 00:49:51.290 but certainly better than the

NOTE Confidence: 0.8219234

00:49:51.290 --> 00:49:52.514 alternative the conventional approach.

NOTE Confidence: 0.8219234

00:49:52.520 --> 00:49:54.254 So we're using this quite actively

NOTE Confidence: 0.8219234

00:49:54.254 --> 00:49:55.810 in patients and and certainly

NOTE Confidence: 0.8219234

00:49:55.810 --> 00:49:57.545 feel free for the clinicians.

NOTE Confidence: 0.8219234

00:49:57.550 --> 00:49:59.014 The radiation Oncologist to reach out to us.

NOTE Confidence: 0.8219234

00:49:59.020 --> 00:50:00.406 If you have a case that you.

NOTE Confidence: 0.8219234

00:50:00.410 --> 00:50:02.198 Be interested in discussing with us.

NOTE Confidence: 0.8219234

00:50:02.200 --> 00:50:04.490 This is a case of a 25 year old female

NOTE Confidence: 0.8219234

00:50:04.551 --> 00:50:06.910 with VM who had a local recurrence

NOTE Confidence: 0.8219234

00:50:06.910 --> 00:50:09.271 but unfortunately had left him in a

NOTE Confidence: 0.8219234

00:50:09.271 --> 00:50:10.876 jewel spread throughout the tumor.

NOTE Confidence: 0.8219234

00:50:10.880 --> 00:50:12.944 Studying this fine and we're actually

NOTE Confidence: 0.8219234

00:50:12.944 --> 00:50:15.222 able to design quite a nice crane

NOTE Confidence: 0.8219234

00:50:15.222 --> 00:50:17.175 spinal vemap plan and this is also

NOTE Confidence: 0.8219234

00:50:17.236 --> 00:50:19.324 shown with for the rat and the plan

NOTE Confidence: 0.8219234

00:50:19.324 --> 00:50:21.146 some for the original radiation.

NOTE Confidence: 0.8219234

00:50:21.146 --> 00:50:24.170 There is shown in the heat map

NOTE Confidence: 0.8219234

00:50:24.258 --> 00:50:25.539 so again really.

NOTE Confidence: 0.8219234

00:50:25.540 --> 00:50:27.381 Lot of flexibility in the way that

NOTE Confidence: 0.8219234

00:50:27.381 --> 00:50:29.894 we use this technique for a number of

NOTE Confidence: 0.8219234

00:50:29.894 --> 00:50:32.190 cancers and certainly just reach out to us.

NOTE Confidence: 0.8219234

00:50:32.190 --> 00:50:33.162 If you're interested.

NOTE Confidence: 0.8219234

00:50:33.162 --> 00:50:33.486 Finally,

NOTE Confidence: 0.8219234

00:50:33.486 --> 00:50:35.738 the last two minutes just want to

NOTE Confidence: 0.8219234

00:50:35.738 --> 00:50:37.238 show you where we're headed now

NOTE Confidence: 0.8219234

00:50:37.238 --> 00:50:39.165 with some of the bench to bedside

NOTE Confidence: 0.8219234

00:50:39.165 --> 00:50:40.851 research that we're doing and we

NOTE Confidence: 0.8219234

00:50:40.860 --> 00:50:42.588 don't have time for this today.

NOTE Confidence: 0.8219234

00:50:42.590 --> 00:50:44.408 But our laboratory is very interested

NOTE Confidence: 0.8219234

00:50:44.408 --> 00:50:45.620 in developing novel Therapeutics

NOTE Confidence: 0.8219234

00:50:45.671 --> 00:50:46.926 for the treatment of gliomas.

NOTE Confidence: 0.8219234

00:50:46.930 --> 00:50:47.764 Another brain tumors,

NOTE Confidence: 0.8219234

00:50:47.764 --> 00:50:49.432 and we've been very lucky to

NOTE Confidence: 0.8219234

00:50:49.432 --> 00:50:50.679 publish some exciting work,

NOTE Confidence: 0.8219234

00:50:50.680 --> 00:50:52.514 shown here in the left in nature

NOTE Confidence: 0.8219234

00:50:52.514 --> 00:50:53.860 and some other journals,

NOTE Confidence: 0.8219234

00:50:53.860 --> 00:50:55.084 but more importantly than

NOTE Confidence: 0.8219234

00:50:55.084 --> 00:50:56.308 able to translate that.

NOTE Confidence: 0.8219234

00:50:56.310 --> 00:50:57.490 Directly into clinical trials,

NOTE Confidence: 0.8219234

00:50:57.490 --> 00:50:58.965 and as you can show,

NOTE Confidence: 0.8219234

00:50:58.970 --> 00:50:59.858 highlighted in red,

NOTE Confidence: 0.8219234

00:50:59.858 --> 00:51:02.210 a number of them for brain tumors law.

NOTE Confidence: 0.8219234

00:51:02.210 --> 00:51:04.865 This work comes from the groups here at Yale,

NOTE Confidence: 0.8219234

00:51:04.870 --> 00:51:06.340 including Moroccan L Peter Glaser

NOTE Confidence: 0.8219234

00:51:06.340 --> 00:51:07.516 and others shown here,

NOTE Confidence: 0.8219234

00:51:07.520 --> 00:51:09.606 and in particular there is one study

NOTE Confidence: 0.8219234

00:51:09.606 --> 00:51:11.964 that would may be of great interest to

NOTE Confidence: 0.8219234

00:51:11.964 --> 00:51:14.308 the brain tumor folks on the call today.

NOTE Confidence: 0.8219234

00:51:14.310 --> 00:51:16.956 This is a study testing a novel DNA repair,

NOTE Confidence: 0.8219234

00:51:16.960 --> 00:51:18.730 a neighbor called a parp inhibitor,

NOTE Confidence: 0.8219234

00:51:18.730 --> 00:51:19.910 combining with Tim's omide

NOTE Confidence: 0.8219234

00:51:19.910 --> 00:51:21.385 chemotherapy for patients with Idh,

NOTE Confidence: 0.8219234

00:51:21.390 --> 00:51:22.275 Mutant Recurrent Glioma.

NOTE Confidence: 0.8219234

00:51:22.275 --> 00:51:24.630 And this is based on our laboratories work.

NOTE Confidence: 0.8219234

00:51:24.630 --> 00:51:26.653 This is a trial that I run

NOTE Confidence: 0.8219234

00:51:26.653 --> 00:51:27.980 with doctor David Shift.

NOTE Confidence: 0.8219234

00:51:27.980 --> 00:51:30.840 And 20 euro is one of the eyes as well.

NOTE Confidence: 0.8219234

00:51:30.840 --> 00:51:32.814 We have actually just finished the dose

NOTE Confidence: 0.8219234

00:51:32.814 --> 00:51:34.270 escalation phase actually this morning,

NOTE Confidence: 0.8219234

00:51:34.270 --> 00:51:35.806 so we are now entering the

NOTE Confidence: 0.8219234

00:51:35.806 --> 00:51:36.830 phase two component and

NOTE Confidence: 0.8414578

00:51:36.881 --> 00:51:37.699 certainly would.

NOTE Confidence: 0.8414578

00:51:37.700 --> 00:51:39.416 Would love to hear from folks.

NOTE Confidence: 0.8414578

00:51:39.420 --> 00:51:40.850 If you have a patient,

NOTE Confidence: 0.8414578

00:51:40.850 --> 00:51:42.845 call doctor Romero or myself with that,

NOTE Confidence: 0.8414578

00:51:42.850 --> 00:51:44.566 certainly just email me, you know,

NOTE Confidence: 0.8414578

00:51:44.570 --> 00:51:46.488 just want to give you a brief

NOTE Confidence: 0.8414578

00:51:46.488 --> 00:51:48.250 kind of smatter of what we're

NOTE Confidence: 0.8414578

00:51:48.250 --> 00:51:49.996 doing down in Smilow rad onc.

NOTE Confidence: 0.8414578

00:51:50.000 --> 00:51:51.932 Email me check out check out on

NOTE Confidence: 0.8414578

00:51:51.932 --> 00:51:53.860 Twitter store up to in the laboratory

NOTE Confidence: 0.8414578

00:51:53.860 --> 00:51:56.108 and also you can come to our website

NOTE Confidence: 0.8414578

00:51:56.108 --> 00:51:58.010 and again thanks for joining us.

NOTE Confidence: 0.8414578

00:51:58.010 --> 00:51:59.510 This evening is really great

NOTE Confidence: 0.8414578

00:51:59.510 --> 00:52:01.010 to see so many participants.

NOTE Confidence: 0.8414578

00:52:01.010 --> 00:52:01.890 I'll leave it at that.

NOTE Confidence: 0.7440378

00:52:08.720 --> 00:52:10.483 Thanks for indeed and then. Finally,

NOTE Confidence: 0.7440378

00:52:10.483 --> 00:52:12.534 we're going to hear from Doctor Amoro,

NOTE Confidence: 0.7440378

00:52:12.540 --> 00:52:14.310 who is cheap of neuron cology.

NOTE Confidence: 0.8569978

00:52:37.670 --> 00:52:39.500 Thank you everyone for a sustained

NOTE Confidence: 0.8569978

00:52:39.500 --> 00:52:41.879 this later to talk about brain tumors.

NOTE Confidence: 0.8569978

00:52:41.880 --> 00:52:43.875 It's really a pleasure to be part

NOTE Confidence: 0.8569978

00:52:43.875 --> 00:52:46.032 of this great meeting and to chat

NOTE Confidence: 0.8569978

00:52:46.032 --> 00:52:48.319 a little bit about what's going on

NOTE Confidence: 0.8569978

00:52:48.319 --> 00:52:50.503 in terms of clinical trials and

NOTE Confidence: 0.8569978

00:52:50.503 --> 00:52:53.950 Translational research in our field.

NOTE Confidence: 0.8569978

00:52:53.950 --> 00:52:55.114 Here by disclosures,

NOTE Confidence: 0.8569978

00:52:55.114 --> 00:52:58.470 I declined to try this for a living,

NOTE Confidence: 0.8569978

00:52:58.470 --> 00:53:01.109 so I have contacted many companies and

NOTE Confidence: 0.8569978

00:53:01.109 --> 00:53:04.082 work with many companies in terms of

NOTE Confidence: 0.8569978

00:53:04.082 --> 00:53:06.728 research support and these are companies

NOTE Confidence: 0.8569978

00:53:06.808 --> 00:53:09.160 that for which I provided advice.

NOTE Confidence: 0.8710418

00:53:14.300 --> 00:53:17.247 So we have only a few minutes,

NOTE Confidence: 0.8710418

00:53:17.250 --> 00:53:20.346 but I would like to give you a

NOTE Confidence: 0.8710418

00:53:20.346 --> 00:53:22.933 broad overview of what's going on

NOTE Confidence: 0.8710418

00:53:22.933 --> 00:53:25.513 in which direction the field is

NOTE Confidence: 0.8710418

00:53:25.606 --> 00:53:28.186 heading in the next few years.

NOTE Confidence: 0.8710418

00:53:28.190 --> 00:53:30.724 So of course the first major advancing

NOTE Confidence: 0.8710418

00:53:30.724 --> 00:53:33.100 our field was the availability of

NOTE Confidence: 0.8710418

00:53:33.100 --> 00:53:35.524 gene sequencing to guide this in

NOTE Confidence: 0.8710418

00:53:35.524 --> 00:53:38.932 terms of diagnosis and in terms of

NOTE Confidence: 0.8710418

00:53:38.932 --> 00:53:40.396 potential experimental treatments.

NOTE Confidence: 0.8710418

00:53:40.400 --> 00:53:42.505 So doctor Blanding has already

NOTE Confidence: 0.8710418

00:53:42.505 --> 00:53:43.768 alluded to this,

NOTE Confidence: 0.8710418

00:53:43.770 --> 00:53:46.138 but the reality is that we are dealing

NOTE Confidence: 0.8710418

00:53:46.138 --> 00:53:49.132 with a brain tumors that are extremely

NOTE Confidence: 0.8710418

00:53:49.132 --> 00:53:51.467 heterogenous from a genomic standpoint.

NOTE Confidence: 0.8710418

00:53:51.470 --> 00:53:53.702 So what you're seeing here is

NOTE Confidence: 0.8710418

00:53:53.702 --> 00:53:56.468 all gliomas and what you can see

NOTE Confidence: 0.8710418

00:53:56.468 --> 00:53:58.874 is that there are very distinct

NOTE Confidence: 0.8710418

00:53:58.874 --> 00:54:01.067 signatures depending on the type of

NOTE Confidence: 0.8710418

00:54:01.067 --> 00:54:03.420 the tumor that we are dealing with.

NOTE Confidence: 0.8710418

00:54:03.420 --> 00:54:05.340 So that starts with algorithms that

NOTE Confidence: 0.8710418

00:54:05.340 --> 00:54:07.667 have a very typical signature of

NOTE Confidence: 0.8710418

00:54:07.667 --> 00:54:09.291 Ideating Tation when connecting

NOTE Confidence: 0.8710418

00:54:09.291 --> 00:54:11.080 you collision turned promoter.

NOTE Confidence: 0.8710418

00:54:11.080 --> 00:54:15.300 see I see and if you could be one mutations.

NOTE Confidence: 0.8710418

00:54:15.300 --> 00:54:18.308 And that is in contrast with our global

NOTE Confidence: 0.8710418

00:54:18.308 --> 00:54:20.618 storms that have EGFR mutations.

NOTE Confidence: 0.8710418

00:54:20.620 --> 00:54:24.365 Petan CD K mutations and MDM 2.

NOTE Confidence: 0.8710418

00:54:24.370 --> 00:54:27.154 So this is great for diagnosis and we

NOTE Confidence: 0.8710418

00:54:27.154 --> 00:54:29.699 certainly use this in clinical practice.

NOTE Confidence: 0.8710418

00:54:29.700 --> 00:54:32.906 But the question is how to translate

NOTE Confidence: 0.8710418

00:54:32.906 --> 00:54:35.080 this into therapeutic advances.

NOTE Confidence: 0.8710418

00:54:35.080 --> 00:54:37.225 So doctor bowling has already

NOTE Confidence: 0.8710418

00:54:37.225 --> 00:54:39.770 alluded to this a little bit,

NOTE Confidence: 0.8710418

00:54:39.770 --> 00:54:42.374 but the reality is that only a

NOTE Confidence: 0.8710418

00:54:42.374 --> 00:54:44.571 very small proportion of these

NOTE Confidence: 0.8710418

00:54:44.571 --> 00:54:46.575 mutations are actually druggable.

NOTE Confidence: 0.8710418

00:54:46.580 --> 00:54:49.107 So what you're seeing here is the

NOTE Confidence: 0.8710418

00:54:49.107 --> 00:54:51.785 same of those patients now divided

NOTE Confidence: 0.8710418

00:54:51.785 --> 00:54:54.821 into whether there was an actionable

NOTE Confidence: 0.8710418

00:54:54.821 --> 00:54:55.950 mutation or not.

NOTE Confidence: 0.8710418

00:54:55.950 --> 00:54:56.802 And here,

NOTE Confidence: 0.8710418

00:54:56.802 --> 00:54:59.784 looking at the percentages of these patients,

NOTE Confidence: 0.8710418

00:54:59.790 --> 00:55:01.920 and as you can see,

NOTE Confidence: 0.8710418

00:55:01.920 --> 00:55:04.050 low hanging fruits for example,

NOTE Confidence: 0.8710418

00:55:04.050 --> 00:55:04.906 be representation.

NOTE Confidence: 0.8710418

00:55:04.906 --> 00:55:08.214 Is only present about 1 to 2% of

NOTE Confidence: 0.8710418

00:55:08.214 --> 00:55:10.038 the patients and same thing goes

NOTE Confidence: 0.8710418

00:55:10.038 --> 00:55:12.366 for all of these other mutations

00:55:12.366 --> 00:55:15.060 that for which there are potentially

00:55:15.060 --> 00:55:16.310 available treatments.

00:55:16.310 --> 00:55:18.710 But they are very challenged to

00:55:18.710 --> 00:55:19.510 study Becausw.

00:55:19.510 --> 00:55:19.910 Again,

00:55:19.910 --> 00:55:22.310 these pages are spread out sometimes

00:55:22.310 --> 00:55:23.510 in the community.

00:55:23.510 --> 00:55:25.966 Sometimes we don't get to us and it

00:55:25.966 --> 00:55:29.078 is hard for us to deliver clinical

00:55:29.078 --> 00:55:31.503 trials for these specific communications.

00:55:31.510 --> 00:55:34.310 Course low hanging fruit is age wanted,

00:55:34.310 --> 00:55:36.818 Mutation and a doctor Bender over.

00:55:36.820 --> 00:55:39.508 Already eluded to that as one of the

00:55:39.508 --> 00:55:41.982 very important mutations that can be

00:55:41.982 --> 00:55:44.142 potentially targeted in various ways,

00:55:44.150 --> 00:55:47.238 but for the most part the other mutations.

NOTE Confidence: 0.8710418

00:55:47.240 --> 00:55:49.796 It remains very challenging to run

NOTE Confidence: 0.8710418

00:55:49.796 --> 00:55:52.880 clinical trials that are specific for them.

NOTE Confidence: 0.8710418

00:55:52.880 --> 00:55:55.080 One trend nowadays is actually

NOTE Confidence: 0.8710418

00:55:55.080 --> 00:55:57.280 conducting what we call basket

NOTE Confidence: 0.8710418

00:55:57.361 --> 00:55:59.886 trials where patients are enrolled,

NOTE Confidence: 0.8710418

00:55:59.890 --> 00:56:02.220 selected by limitation and not

NOTE Confidence: 0.8710418

00:56:02.220 --> 00:56:04.084 by the disease itself,

NOTE Confidence: 0.8710418

00:56:04.090 --> 00:56:06.556 which means that patients can be

NOTE Confidence: 0.8710418

00:56:06.556 --> 00:56:09.827 enrolled in a trial together with breast

NOTE Confidence: 0.8710418

00:56:09.827 --> 00:56:13.425 cancer with lung cancer and prostate cancer.

NOTE Confidence: 0.8710418

00:56:13.430 --> 00:56:13.836 Unfortunately,

NOTE Confidence: 0.8710418

00:56:13.836 --> 00:56:15.054 in our case,

NOTE Confidence: 0.8710418

00:56:15.054 --> 00:56:18.125 a lot of the trials do exclude

NOTE Confidence: 0.8710418

00:56:18.125 --> 00:56:20.895 patients because of brain tumors.

NOTE Confidence: 0.8710418

00:56:20.900 --> 00:56:23.786 The brain tumor location exclude them.

NOTE Confidence: 0.8710418

00:56:23.790 --> 00:56:24.926 Property is being destroyed,

NOTE Confidence: 0.8710418

00:56:24.926 --> 00:56:27.695 so we have to do a lot of lobbying

NOTE Confidence: 0.8710418

00:56:27.695 --> 00:56:29.693 with their companies to really push

NOTE Confidence: 0.8710418

00:56:29.693 --> 00:56:31.586 for basket trials that actually

NOTE Confidence: 0.8710418

00:56:31.586 --> 00:56:33.836 allow our patients to be enrolled.

NOTE Confidence: 0.8710418

00:56:33.840 --> 00:56:35.450 Fortunately for us is that

NOTE Confidence: 0.8710418

00:56:35.450 --> 00:56:37.530 we have a very strong phase.

NOTE Confidence: 0.8710418

00:56:37.530 --> 00:56:39.200 One group here at Yale,

NOTE Confidence: 0.8710418

00:56:39.200 --> 00:56:41.210 and we're able to find trials.

NOTE Confidence: 0.8314261

00:56:41.210 --> 00:56:43.200 And if we don't find trials,

NOTE Confidence: 0.8314261

00:56:43.200 --> 00:56:45.370 we do make every effort to contact

NOTE Confidence: 0.8314261

00:56:45.370 --> 00:56:47.273 the drug companies and see if

NOTE Confidence: 0.8314261

00:56:47.273 --> 00:56:49.097 they can provide this drug on

NOTE Confidence: 0.8314261

00:56:49.164 --> 00:56:50.928 a compassionate use protocol.

NOTE Confidence: 0.8583361

00:56:53.310 --> 00:56:55.500 Another challenge that we are facing

NOTE Confidence: 0.8583361

00:56:55.500 --> 00:56:58.248 now is that while this is all great,

NOTE Confidence: 0.8583361

00:56:58.250 --> 00:57:00.567 but the sequencing is typically done at

NOTE Confidence: 0.8583361

00:57:00.567 --> 00:57:03.632 the time of diagnosis and here you're

NOTE Confidence: 0.8583361

00:57:03.632 --> 00:57:06.132 looking at several potentially actionable

NOTE Confidence: 0.8583361

00:57:06.132 --> 00:57:08.456 mutations on this patient that had a.

NOTE Confidence: 0.8583361

00:57:08.460 --> 00:57:10.740 An astrocytoma and this patient was

NOTE Confidence: 0.8583361

00:57:10.740 --> 00:57:12.268 treated successfully, if initially,

NOTE Confidence: 0.8583361

00:57:12.268 --> 00:57:14.956 but then the patient had a small

NOTE Confidence: 0.8583361

00:57:14.956 --> 00:57:17.432 recurrence and a lot of Physicians would

NOTE Confidence: 0.8583361

00:57:17.432 --> 00:57:19.859 not ask for surgical resection here.

NOTE Confidence: 0.8583361

00:57:19.860 --> 00:57:21.996 But because this patient had a

NOTE Confidence: 0.8583361

00:57:21.996 --> 00:57:24.308 very good course and this was

NOTE Confidence: 0.8583361

00:57:24.308 --> 00:57:25.936 a very favorable location,

NOTE Confidence: 0.8583361

00:57:25.940 --> 00:57:28.788 we convinced our students to go after this

NOTE Confidence: 0.8583361

00:57:28.788 --> 00:57:32.411 and what we found is that all of those

NOTE Confidence: 0.8583361

00:57:32.411 --> 00:57:34.679 potentially actual rotations were all gone,

NOTE Confidence: 0.8583361

00:57:34.680 --> 00:57:36.200 replaced by passenger mutations

NOTE Confidence: 0.8583361

00:57:36.200 --> 00:57:37.720 that are not relevant,

NOTE Confidence: 0.8583361

00:57:37.720 --> 00:57:40.378 and what was driving the malignancy

NOTE Confidence: 0.8583361

00:57:40.378 --> 00:57:41.707 here was really.

NOTE Confidence: 0.8583361

00:57:41.710 --> 00:57:43.560 Edges in the economic landscape.

NOTE Confidence: 0.8583361

00:57:43.560 --> 00:57:46.160 So this makes our lives a little harder

NOTE Confidence: 0.8583361

00:57:46.160 --> 00:57:48.738 because it can imagine that we're trying

NOTE Confidence: 0.8583361

00:57:48.738 --> 00:57:51.069 to enroll these patients in targeted

NOTE Confidence: 0.8583361

00:57:51.069 --> 00:57:53.918 therapies based on this type of Mutation.

NOTE Confidence: 0.8583361

00:57:53.920 --> 00:57:56.482 But the reality is that what we

NOTE Confidence: 0.8583361

00:57:56.482 --> 00:57:59.098 really need is to have an update.

NOTE Confidence: 0.8583361

00:57:59.100 --> 00:58:03.172 Information on the genomics so we can match

NOTE Confidence: 0.8583361

00:58:03.172 --> 00:58:06.387 these patients in a more efficient way.

NOTE Confidence: 0.8583361

00:58:06.390 --> 00:58:08.484 So here is just the summary

NOTE Confidence: 0.8583361

00:58:08.484 --> 00:58:09.880 of where we heading,

NOTE Confidence: 0.8583361

00:58:09.880 --> 00:58:10.193 right?

NOTE Confidence: 0.8583361

00:58:10.193 --> 00:58:13.010 So I think right now one of our major

NOTE Confidence: 0.8583361

00:58:13.085 --> 00:58:15.528 focus is really on phase zero tries

NOTE Confidence: 0.8583361

00:58:15.528 --> 00:58:18.126 and what this means that we're trying

NOTE Confidence: 0.8583361

00:58:18.126 --> 00:58:21.072 to give drugs to the patient and then

NOTE Confidence: 0.8583361

00:58:21.072 --> 00:58:23.599 respect the tumors and then have more

NOTE Confidence: 0.8583361

00:58:23.599 --> 00:58:25.677 information on what kind of targets

NOTE Confidence: 0.8583361

00:58:25.677 --> 00:58:27.734 our new treatments are really hitting

NOTE Confidence: 0.8583361

00:58:27.734 --> 00:58:29.786 and whether there really are doing

NOTE Confidence: 0.8583361

00:58:29.786 --> 00:58:33.400 the job that they are supposed to do.

NOTE Confidence: 0.8583361

00:58:33.400 --> 00:58:35.890 The other trend that I just

NOTE Confidence: 0.8583361

00:58:35.890 --> 00:58:38.661 alluded to was the basket trials

NOTE Confidence: 0.8583361

00:58:38.661 --> 00:58:41.709 that are getting more and more.

NOTE Confidence: 0.8583361

00:58:41.710 --> 00:58:42.256 Efficient,

NOTE Confidence: 0.8583361

00:58:42.256 --> 00:58:46.078 but it also again carries the challenge

NOTE Confidence: 0.8583361

00:58:46.078 --> 00:58:49.599 of excluding patients with brain tumors.

NOTE Confidence: 0.8583361

00:58:49.600 --> 00:58:50.518 And then again,

NOTE Confidence: 0.8583361

00:58:50.518 --> 00:58:52.660 the other trend right now is to

NOTE Confidence: 0.8583361

00:58:52.733 --> 00:58:54.978 really re sample recurrent disease

NOTE Confidence: 0.8583361

00:58:54.978 --> 00:58:56.774 if that's really important.

NOTE Confidence: 0.8583361

00:58:56.780 --> 00:58:59.420 So one of the applications is really to

NOTE Confidence: 0.8583361

00:58:59.420 --> 00:59:01.700 exclude the hyper mutator phenotype,

NOTE Confidence: 0.8583361

00:59:01.700 --> 00:59:05.074 which doctor Brownlee has already alluded to.

NOTE Confidence: 0.8583361

00:59:05.080 --> 00:59:06.860 And again, as I mentioned,

NOTE Confidence: 0.8583361

00:59:06.860 --> 00:59:08.640 to update the gene sequence,

NOTE Confidence: 0.8583361

00:59:08.640 --> 00:59:10.796 see another trend right now is to

NOTE Confidence: 0.8583361

00:59:10.796 --> 00:59:13.270 target what we call trump commutation.

NOTE Confidence: 0.8583361

00:59:13.270 --> 00:59:15.475 So these are mutations that are that

NOTE Confidence: 0.8583361

00:59:15.475 --> 00:59:17.669 arise early in the uncle genetic

NOTE Confidence: 0.8583361

00:59:17.669 --> 00:59:20.039 process and they are very conserved

NOTE Confidence: 0.8583361

00:59:20.039 --> 00:59:22.166 throughout the history of the disease.

NOTE Confidence: 0.8583361

00:59:22.170 --> 00:59:24.300 And these materials are not so

NOTE Confidence: 0.8583361

00:59:24.300 --> 00:59:25.365 easy to target.

NOTE Confidence: 0.8583361

00:59:25.370 --> 00:59:27.506 This depends a lot of what

NOTE Confidence: 0.8583361

00:59:27.506 --> 00:59:28.930 we call functional genomics.

NOTE Confidence: 0.8583361

00:59:28.930 --> 00:59:31.648 So studies that define vulnerabilities that

NOTE Confidence: 0.8583361

00:59:31.648 --> 00:59:34.160 are associated these mutations and that

NOTE Confidence: 0.8583361

00:59:34.160 --> 00:59:36.704 is one of the paradigms that Doctor Bindra.

NOTE Confidence: 0.8583361

00:59:36.710 --> 00:59:40.077 To develop his trials in Ideating Tations.

NOTE Confidence: 0.8583361

00:59:40.080 --> 00:59:40.512 So,

NOTE Confidence: 0.8583361

00:59:40.512 --> 00:59:43.536 and overall what the field is actually

NOTE Confidence: 0.8583361

00:59:43.536 --> 00:59:46.734 doing as a whole is actually moving

NOTE Confidence: 0.8583361

00:59:46.734 --> 00:59:50.102 out of these very selected targets to

NOTE Confidence: 0.8583361

00:59:50.102 --> 00:59:52.687 alternative strategies that are more

NOTE Confidence: 0.8583361

00:59:52.687 --> 00:59:56.160 stable in the course of the disease.

NOTE Confidence: 0.8583361

00:59:56.160 --> 00:59:59.040 So one of them is immunotherapy

NOTE Confidence: 0.8583361

00:59:59.135 --> 01:00:00.470 and Doctor Bob.

NOTE Confidence: 0.8583361

01:00:00.470 --> 01:00:03.806 Already sore eyes to you that

NOTE Confidence: 0.8583361

01:00:03.806 --> 01:00:06.030 unfortunately image checkpoint inhibitors

NOTE Confidence: 0.8583361

01:00:06.111 --> 01:00:09.006 have largely failed in Glioblastomas.

NOTE Confidence: 0.8583361

01:00:09.010 --> 01:00:11.453 There is many reasons for that and

NOTE Confidence: 0.8583361

01:00:11.453 --> 01:00:14.207 we are trying to understand that we

NOTE Confidence: 0.8583361

01:00:14.207 --> 01:00:16.649 published the first study of magic

NOTE Confidence: 0.83715415

01:00:16.730 --> 01:00:19.046 when inhibitors using volume AB and

NOTE Confidence: 0.83715415

01:00:19.046 --> 01:00:21.858 it alone map over four years ago and

NOTE Confidence: 0.83715415

01:00:21.858 --> 01:00:24.707 there has been a lot of advance in

NOTE Confidence: 0.83715415

01:00:24.707 --> 01:00:27.293 trying to understand how the brain

NOTE Confidence: 0.83715415

01:00:27.293 --> 01:00:30.592 handles the immuno logic system in a way

NOTE Confidence: 0.83715415

01:00:30.592 --> 01:00:33.544 that is both protective of the brain.

NOTE Confidence: 0.83715415

01:00:33.544 --> 01:00:35.834 But unfortunately also protective of

NOTE Confidence: 0.83715415

01:00:35.834 --> 01:00:38.960 the tumor. So to study this further,

NOTE Confidence: 0.83715415

01:00:38.960 --> 01:00:42.019 what we did was to enlist specialists

NOTE Confidence: 0.83715415

01:00:42.019 --> 01:00:45.128 in the immune system in the brain.

NOTE Confidence: 0.83715415

01:00:45.130 --> 01:00:48.130 So a lot of the work in cancer

NOTE Confidence: 0.83715415

01:00:48.130 --> 01:00:50.858 is done by Immuno colleges.

NOTE Confidence: 0.83715415

01:00:50.860 --> 01:00:54.142 But we're fortunate enough to have

NOTE Confidence: 0.83715415

01:00:54.142 --> 01:00:57.809 at Yale access to amazing Nero.

NOTE Confidence: 0.83715415

01:00:57.810 --> 01:00:58.992 Inflammation near inflammation

NOTE Confidence: 0.83715415

01:00:58.992 --> 01:01:00.568 specialist if you will,

NOTE Confidence: 0.83715415

01:01:00.570 --> 01:01:03.418 and one of them is doctor David Hafner

NOTE Confidence: 0.83715415

01:01:03.418 --> 01:01:05.482 who studies inflammatory disease in

NOTE Confidence: 0.83715415

01:01:05.482 --> 01:01:08.471 the brain and his hypothesis is that

NOTE Confidence: 0.83715415

01:01:08.545 --> 01:01:10.849 a more relevant checkpoint in the

NOTE Confidence: 0.83715415

01:01:10.849 --> 01:01:13.178 brain is this normal ethical digit.

NOTE Confidence: 0.83715415

01:01:13.178 --> 01:01:15.936 So this is a novel immune checkpoint

NOTE Confidence: 0.83715415

01:01:15.936 --> 01:01:18.520 that seems to have a very important

NOTE Confidence: 0.83715415

01:01:18.520 --> 01:01:21.059 role in the central nervous system.

NOTE Confidence: 0.83715415

01:01:21.060 --> 01:01:21.806 For example,

NOTE Confidence: 0.83715415

01:01:21.806 --> 01:01:24.417 it is lacking in patients that have

NOTE Confidence: 0.83715415

01:01:24.417 --> 01:01:26.668 multiple sclerosis and expression of

NOTE Confidence: 0.83715415

01:01:26.668 --> 01:01:29.380 digits is very frequent in Glioblastomas.

NOTE Confidence: 0.83715415

01:01:29.380 --> 01:01:31.280 So to investigate this further,

NOTE Confidence: 0.83715415

01:01:31.280 --> 01:01:33.460 we partnered with Doctor Moliterno

NOTE Confidence: 0.83715415

01:01:33.460 --> 01:01:36.104 and doctor David has first lab

NOTE Confidence: 0.83715415

01:01:36.104 --> 01:01:38.069 with Liliana Luca and orders.

NOTE Confidence: 0.83715415

01:01:38.070 --> 01:01:40.646 And what we're doing is national trial,

NOTE Confidence: 0.83715415

01:01:40.650 --> 01:01:42.300 multicenter led by Yale that

NOTE Confidence: 0.83715415

01:01:42.300 --> 01:01:43.950 will randomize spaces that are

NOTE Confidence: 0.83715415

01:01:44.015 --> 01:01:46.040 candidates for surgery for either

NOTE Confidence: 0.83715415

01:01:46.040 --> 01:01:47.660 receipt and tactician antibody.

NOTE Confidence: 0.83715415

01:01:47.660 --> 01:01:48.348 Anti PD,

NOTE Confidence: 0.83715415

01:01:48.348 --> 01:01:50.068 one antibody and package it

NOTE Confidence: 0.83715415

01:01:50.068 --> 01:01:52.090 plus anti PD one antibody,

NOTE Confidence: 0.83715415

01:01:52.090 --> 01:01:54.568 oropos IBO and that is just before

NOTE Confidence: 0.83715415

01:01:54.568 --> 01:01:56.520 the surgery after the surgery.

NOTE Confidence: 0.83715415

01:01:56.520 --> 01:01:58.986 All of the pieces will have

NOTE Confidence: 0.83715415

01:01:58.986 --> 01:02:01.193 access to both the combination

NOTE Confidence: 0.83715415

01:02:01.193 --> 01:02:04.476 of Anti Tigit and anti PD one.

NOTE Confidence: 0.83715415

01:02:04.480 --> 01:02:07.612 And what we're going to do is to really

NOTE Confidence: 0.83715415

01:02:07.612 --> 01:02:10.799 look at these tumors and paired blood

NOTE Confidence: 0.83715415

01:02:10.799 --> 01:02:13.589 samples and perform state of the art.

NOTE Confidence: 0.83715415

01:02:13.590 --> 01:02:14.472 Translational studies,

NOTE Confidence: 0.83715415

01:02:14.472 --> 01:02:16.677 including single cell RNA sequencing

NOTE Confidence: 0.83715415

01:02:16.677 --> 01:02:19.056 utilizing the next onomics at the

NOTE Confidence: 0.83715415

01:02:19.056 --> 01:02:20.716 youth center of genome analysis.

NOTE Confidence: 0.83715415

01:02:20.720 --> 01:02:22.700 So this is very exciting.

NOTE Confidence: 0.83715415

01:02:22.700 --> 01:02:23.032 Troy,

NOTE Confidence: 0.83715415

01:02:23.032 --> 01:02:25.356 that will actually tell us where the

NOTE Confidence: 0.83715415

01:02:25.356 --> 01:02:27.840 pieces are really mounting effectively.

NOTE Confidence: 0.83715415

01:02:27.840 --> 01:02:29.820 Motor responses in the brain,

NOTE Confidence: 0.83715415

01:02:29.820 --> 01:02:32.588 and we hope to learn a lot about

NOTE Confidence: 0.83715415

01:02:32.588 --> 01:02:35.050 whether this hypothesis is correct.

NOTE Confidence: 0.83715415

01:02:35.050 --> 01:02:36.650 And hopefully these spaces will

NOTE Confidence: 0.83715415

01:02:36.650 --> 01:02:38.572 also benefit from the fact that

NOTE Confidence: 0.83715415

01:02:38.572 --> 01:02:40.385 these drugs are being given in the

NOTE Confidence: 0.83715415

01:02:40.385 --> 01:02:42.347 what we call new edgmont setting.

NOTE Confidence: 0.84080267

01:02:44.970 --> 01:02:48.204 Our another trend is to perform studies

NOTE Confidence: 0.84080267

01:02:48.204 --> 01:02:51.328 in parallel with the clinical trials,

NOTE Confidence: 0.84080267

01:02:51.330 --> 01:02:53.964 and in this particular case what

NOTE Confidence: 0.84080267

01:02:53.964 --> 01:02:57.498 we're going to do is to study these

NOTE Confidence: 0.84080267

01:02:57.498 --> 01:03:00.806 drugs in a more systematic way by

NOTE Confidence: 0.84080267

01:03:00.806 --> 01:03:03.546 utilizing genetically engineer mice.

NOTE Confidence: 0.84080267

01:03:03.550 --> 01:03:06.644 So these are models developed by doctor

NOTE Confidence: 0.84080267

01:03:06.644 --> 01:03:09.503 city chain that has these amazing

NOTE Confidence: 0.84080267

01:03:09.503 --> 01:03:12.395 technologies to really create what we

NOTE Confidence: 0.84080267

01:03:12.395 --> 01:03:15.378 call patients avatars so basically.

NOTE Confidence: 0.84080267

01:03:15.380 --> 01:03:18.062 These are mice that will develop

NOTE Confidence: 0.84080267

01:03:18.062 --> 01:03:20.338 tumors that resemble certain patients

NOTE Confidence: 0.84080267

01:03:20.338 --> 01:03:23.208 so that we get the combination of

NOTE Confidence: 0.84080267

01:03:23.208 --> 01:03:25.957 mutations and then he creates these

NOTE Confidence: 0.84080267

01:03:25.957 --> 01:03:28.267 models utilizing a crisper technology

NOTE Confidence: 0.84080267

01:03:28.267 --> 01:03:31.148 and then we will treat these animals

NOTE Confidence: 0.84080267

01:03:31.148 --> 01:03:34.122 with the same types of combinations to

NOTE Confidence: 0.84080267

01:03:34.122 --> 01:03:37.104 see how these novel agents behave in

NOTE Confidence: 0.84080267

01:03:37.190 --> 01:03:40.124 the setting of the different mutations

NOTE Confidence: 0.84080267

01:03:40.124 --> 01:03:42.992 that are associated with these tools.

NOTE Confidence: 0.84080267

01:03:42.992 --> 01:03:45.728 So this is very exciting work.

NOTE Confidence: 0.84080267

01:03:45.730 --> 01:03:47.150 That, again is going parallel.

NOTE Confidence: 0.84080267

01:03:47.150 --> 01:03:48.854 That will inform us the clinical

NOTE Confidence: 0.84080267

01:03:48.854 --> 01:03:50.600 Troy and then hopefully help us

NOTE Confidence: 0.84080267

01:03:50.600 --> 01:03:51.980 select patients in the future.

NOTE Confidence: 0.84080267

01:03:51.980 --> 01:03:53.684 There are more likely to benefit

NOTE Confidence: 0.84080267

01:03:53.684 --> 01:03:55.100 from each of these treatments.

NOTE Confidence: 0.7860057

01:03:57.540 --> 01:03:59.838 Another clinical trial coming up in

NOTE Confidence: 0.7860057

01:03:59.838 --> 01:04:02.227 generate is coming from this company

NOTE Confidence: 0.7860057

01:04:02.227 --> 01:04:04.207 called Nuna Pharmaceuticals and what

NOTE Confidence: 0.7860057

01:04:04.207 --> 01:04:06.648 they did is that they discovered

NOTE Confidence: 0.7860057

01:04:06.648 --> 01:04:09.024 another receptor within the Alpha V

NOTE Confidence: 0.7860057

01:04:09.024 --> 01:04:11.485 Beta three integrin that is started

NOTE Confidence: 0.7860057

01:04:11.485 --> 01:04:14.170 by this new drug called FB PMT,

NOTE Confidence: 0.7860057

01:04:14.170 --> 01:04:16.522 and this has an amazing activity

NOTE Confidence: 0.7860057

01:04:16.522 --> 01:04:19.011 in term cells into mark environment

NOTE Confidence: 0.7860057

01:04:19.011 --> 01:04:21.543 and into Genesis and will have

NOTE Confidence: 0.7860057

01:04:21.543 --> 01:04:24.469 the 1st in human trial here at AO.

NOTE Confidence: 0.7860057

01:04:24.470 --> 01:04:26.906 And once again we are conducting.

NOTE Confidence: 0.7860057

114

01:04:26.910 --> 01:04:28.598 Laboratory experiments in parallel

NOTE Confidence: 0.7860057

01:04:28.598 --> 01:04:31.878 as we develop that Royal to try to

NOTE Confidence: 0.7860057

01:04:31.878 --> 01:04:33.918 understand this drug a little bit

NOTE Confidence: 0.7860057

01:04:33.918 --> 01:04:36.547 better in terms of what it does to

NOTE Confidence: 0.7860057

01:04:36.547 --> 01:04:38.164 some invasion for the formation.

NOTE Confidence: 0.7860057

01:04:38.164 --> 01:04:40.348 Activation of the signaling networks and

NOTE Confidence: 0.7860057

01:04:40.348 --> 01:04:42.520 gene expression for terms and Phosphate.

NOTE Confidence: 0.7860057

01:04:42.520 --> 01:04:45.656 Omics studies to see if we can again

NOTE Confidence: 0.7860057

01:04:45.656 --> 01:04:48.684 identify who are the best candidates for

NOTE Confidence: 0.7860057

01:04:48.684 --> 01:04:52.049 this type of treatment and also identify.

NOTE Confidence: 0.7860057

01:04:52.050 --> 01:04:54.094 Which are the best partners to be

NOTE Confidence: 0.7860057

01:04:54.094 --> 01:04:56.099 combined with this drug in the future?

NOTE Confidence: 0.7860057

01:04:56.100 --> 01:04:58.452 And this is all work being done by

NOTE Confidence: 0.7860057

01:04:58.452 --> 01:05:00.427 Doctor Underlift Chanco here at the air.

NOTE Confidence: 0.83089423

01:05:03.170 --> 01:05:04.934 Another superstar laboratory scientist

NOTE Confidence: 0.83089423

01:05:04.934 --> 01:05:07.580 here at Yale is Doctor Iwasaki.

01:05:07.580 --> 01:05:11.108 Some of you may have seen her immediate.

01:05:11.110 --> 01:05:12.874 She's our COVID-19 specialist,

01:05:12.874 --> 01:05:14.638 so she's all over.

01:05:14.640 --> 01:05:17.657 And in fact this is catching her

01:05:17.657 --> 01:05:20.807 attention from her work in brain tumors.

01:05:20.810 --> 01:05:24.219 But she is very interested in developing

01:05:24.219 --> 01:05:27.147 novel treatment for global stoma because

01:05:27.147 --> 01:05:30.381 of her interest in the immune system

01:05:30.469 --> 01:05:33.325 in the brain and with work done by

01:05:33.325 --> 01:05:36.990 Eric Song and Jonathan's in her lab.

01:05:36.990 --> 01:05:39.798 In a very hyper 5 paper

01:05:39.798 --> 01:05:42.790 published in nature of this year,

01:05:42.790 --> 01:05:45.688 she found that really one of the

01:05:45.688 --> 01:05:48.032 problems of the immune system

01:05:48.032 --> 01:05:51.080 activation in the brain is actually

01:05:51.080 --> 01:05:53.715 linked to the lymphatic drainage

NOTE Confidence: 0.83089423

01:05:53.715 --> 01:05:57.271 that is very defective in the brain.

NOTE Confidence: 0.83089423

01:05:57.280 --> 01:06:00.108 And then she discovered that with Vejer

NOTE Confidence: 0.83089423

01:06:00.108 --> 01:06:03.088 C she could potentially modulate this

NOTE Confidence: 0.83089423

01:06:03.088 --> 01:06:07.022 and then eventually they patients started to.

NOTE Confidence: 0.83089423

01:06:07.030 --> 01:06:09.136 For the personal did mice started

NOTE Confidence: 0.83089423

01:06:09.136 --> 01:06:11.485 to respond to the email checkpoint

NOTE Confidence: 0.83089423

01:06:11.485 --> 01:06:14.089 inhibitors and other forms of women

NOTE Confidence: 0.83089423

01:06:14.089 --> 01:06:16.787 of therapy so she started killing mice

NOTE Confidence: 0.83089423

01:06:16.787 --> 01:06:20.041 by adding the jeffsy to the male therapist.

NOTE Confidence: 0.83089423

01:06:20.041 --> 01:06:23.520 So this is very exciting work that

NOTE Confidence: 0.83089423

01:06:23.622 --> 01:06:26.520 we hope to be translating into a

NOTE Confidence: 0.83089423

01:06:26.520 --> 01:06:28.969 trial in the near future.

NOTE Confidence: 0.83089423

01:06:28.970 --> 01:06:30.382 Doctor Bender already alluded

NOTE Confidence: 0.83089423

01:06:30.382 --> 01:06:32.500 to his work in DNA repair.

NOTE Confidence: 0.83089423

01:06:32.500 --> 01:06:34.450 Yale has a long tradition of

117

NOTE Confidence: 0.83089423

01:06:34.450 --> 01:06:36.739 work done in this space effect.

NOTE Confidence: 0.83089423

01:06:36.740 --> 01:06:39.162 A lot of the very early studies

NOTE Confidence: 0.83089423

01:06:39.162 --> 01:06:40.620 were actually done here,

NOTE Confidence: 0.83089423

01:06:40.620 --> 01:06:42.076 and after being there,

NOTE Confidence: 0.83089423

01:06:42.076 --> 01:06:44.500 continue with that tradition and launch it.

NOTE Confidence: 0.83089423

01:06:44.500 --> 01:06:46.971 A bunch of colon trials looking at

NOTE Confidence: 0.83089423

01:06:46.971 --> 01:06:49.437 Parp Inhibitors in I DH mutant gliomas.

NOTE Confidence: 0.8141689

01:06:52.260 --> 01:06:54.426 Also, going on here is expanding

NOTE Confidence: 0.8141689

01:06:54.426 --> 01:06:57.609 on some of the work on DNA repair

NOTE Confidence: 0.8141689

01:06:57.609 --> 01:07:00.099 and extended to MDM two inhibitors.

NOTE Confidence: 0.8141689

01:07:00.100 --> 01:07:02.585 We have partnered with Mayo Clinic to

NOTE Confidence: 0.8141689

01:07:02.585 --> 01:07:05.200 develop 2 early phase clinical trials.

NOTE Confidence: 0.8141689

01:07:05.200 --> 01:07:08.806 One will be. Investigating MDM,

NOTE Confidence: 0.8141689

01:07:08.806 --> 01:07:11.314 two inhibitors and the other one

NOTE Confidence: 0.8141689

01:07:11.314 --> 01:07:14.349 will be that is led by general care

NOTE Confidence: 0.8141689

01:07:14.349 --> 01:07:16.987 animal Glennis at Mayo Clinic in in

NOTE Confidence: 0.8141689

01:07:16.987 --> 01:07:19.279 partnership with us and doctor Bender

NOTE Confidence: 0.8141689

01:07:19.279 --> 01:07:22.092 and I will be working on a project

NOTE Confidence: 0.8141689

01:07:22.092 --> 01:07:24.903 to develop ATR and ATM inhibitors and

NOTE Confidence: 0.8141689

01:07:24.903 --> 01:07:27.905 this is again very exciting work and

NOTE Confidence: 0.8141689

01:07:27.905 --> 01:07:30.209 we are fortunate to have bachelors

NOTE Confidence: 0.8141689

01:07:30.209 --> 01:07:33.090 who is also a DNA repair specialists

NOTE Confidence: 0.8141689

01:07:33.090 --> 01:07:35.670 when it comes to drug development

NOTE Confidence: 0.8141689

01:07:35.745 --> 01:07:37.965 and this is a really exciting.

NOTE Confidence: 0.8141689

01:07:37.970 --> 01:07:39.590 Development here at Yale.

NOTE Confidence: 0.78572315

01:07:41.970 --> 01:07:43.980 And we don't have time to

NOTE Confidence: 0.78572315

01:07:43.980 --> 01:07:46.330 go over all of our trials.

NOTE Confidence: 0.78572315

01:07:46.330 --> 01:07:48.850 But here is just a non exhaustive

NOTE Confidence: 0.78572315

01:07:48.850 --> 01:07:50.679 list of what's going on.

NOTE Confidence: 0.78572315

01:07:50.680 --> 01:07:52.858 We also have inhibitors of ID,

NOTE Confidence: 0.78572315

01:07:52.860 --> 01:07:55.038 age mutant for low grade gliomas,

119

01:07:55.040 --> 01:07:57.336 with the idea that if we intervene

01:07:57.336 --> 01:07:59.572 in this tumors earlier when they're

01:07:59.572 --> 01:08:01.936 not behaving in a Malignant Way,

01:08:01.940 --> 01:08:04.106 maybe these drugs are more effective.

01:08:04.110 --> 01:08:05.562 We have drug combinations

01:08:05.562 --> 01:08:07.014 for beer affix extender,

01:08:07.020 --> 01:08:09.594 E mutations in Bloom's credit for

01:08:09.594 --> 01:08:12.450 germs and all other brain tumors.

01:08:12.450 --> 01:08:14.020 Doctor Blanding already alluded

01:08:14.020 --> 01:08:15.160 to red grafted,

01:08:15.160 --> 01:08:17.060 and how that could potentially

01:08:17.060 --> 01:08:19.125 improve survival in newly diagnosed

01:08:19.125 --> 01:08:20.749 and recurrent your games,

01:08:20.750 --> 01:08:23.114 and this is an ongoing trying

01:08:23.114 --> 01:08:24.296 that's really exciting.

01:08:24.300 --> 01:08:26.152 We're exploring another potential

NOTE Confidence: 0.78572315

01:08:26.152 --> 01:08:29.344 prior with interest or and and this

NOTE Confidence: 0.78572315

01:08:29.344 --> 01:08:31.724 is 4 pieces that have a germline

NOTE Confidence: 0.78572315

01:08:31.724 --> 01:08:33.777 by market called the GM one.

NOTE Confidence: 0.78572315

01:08:33.780 --> 01:08:34.524 So again,

NOTE Confidence: 0.78572315

01:08:34.524 --> 01:08:36.756 trying to deliver on this promise

NOTE Confidence: 0.78572315

01:08:36.756 --> 01:08:38.130 of personalized medicine.

NOTE Confidence: 0.78572315

01:08:38.130 --> 01:08:41.161 This is a drug that could potentially

NOTE Confidence: 0.78572315

01:08:41.161 --> 01:08:43.309 help patients that have this.

NOTE Confidence: 0.78572315

01:08:43.310 --> 01:08:44.276 Buy a market.

NOTE Confidence: 0.78572315

01:08:44.276 --> 01:08:46.208 Where is the page that do

NOTE Confidence: 0.78572315

01:08:46.208 --> 01:08:48.029 not have the biomarker?

NOTE Confidence: 0.78572315

01:08:48.030 --> 01:08:50.438 Do not seem to respond so this

NOTE Confidence: 0.78572315

01:08:50.438 --> 01:08:51.925 is another potential concept

NOTE Confidence: 0.78572315

01:08:51.925 --> 01:08:53.835 that we will be exploring.

NOTE Confidence: 0.78572315

01:08:53.840 --> 01:08:55.288 We have chemotherapy regiment

NOTE Confidence: 0.78572315

01:08:55.288 --> 01:08:56.736 trials for one painting.

NOTE Confidence: 0.78572315

01:08:56.740 --> 01:08:57.775 Q Coleader argument.

NOTE Confidence: 0.78572315

01:08:57.775 --> 01:08:59.845 Gliomas have petition driven controls for

NOTE Confidence: 0.78572315

01:08:59.845 --> 01:09:01.817 brain metastasis and for meningiomas,

NOTE Confidence: 0.78572315

01:09:01.820 --> 01:09:03.860 so this is all happening right

NOTE Confidence: 0.78572315

01:09:03.860 --> 01:09:06.722 here at you and we hope to see

NOTE Confidence: 0.78572315

01:09:06.722 --> 01:09:08.852 more and more patients in growing

NOTE Confidence: 0.78572315

01:09:08.932 --> 01:09:11.194 our clinical trials so we can

NOTE Confidence: 0.78572315

01:09:11.194 --> 01:09:13.952 advance the field and try to match.

NOTE Confidence: 0.78572315

01:09:13.952 --> 01:09:14.780 These patients,

NOTE Confidence: 0.78572315

01:09:14.780 --> 01:09:17.125 with the best experimental treatment

NOTE Confidence: 0.78572315

01:09:17.125 --> 01:09:20.010 available and we are very fortunate

NOTE Confidence: 0.78572315

01:09:20.010 --> 01:09:23.237 to have all of these people working

NOTE Confidence: 0.78572315

01:09:23.237 --> 01:09:25.603 across multiple scores here at the

NOTE Confidence: 0.78572315

01:09:25.603 --> 01:09:28.078 that will be helping us to really

NOTE Confidence: 0.78572315

01:09:28.078 --> 01:09:30.646 make a difference in this space.

NOTE Confidence: 0.78572315

01:09:30.650 --> 01:09:33.646 Thank you very much for your attention.

NOTE Confidence: 0.91996855

01:09:40.960 --> 01:09:47.278 Yeah, so we will open this up to questions.

NOTE Confidence: 0.91996855

01:09:47.280 --> 01:09:50.223 Then I guess what we could do is if

NOTE Confidence: 0.91996855

01:09:50.223 --> 01:09:53.514 you want to submit any questions to the

NOTE Confidence: 0.91996855

01:09:53.514 --> 01:09:56.926 chat and then I can just read them off.

NOTE Confidence: 0.8320570725

01:09:59.020 --> 01:10:01.060 Was the Q&A. Then there's

NOTE Confidence: 0.8320570725

01:10:01.060 --> 01:10:02.910 the separate bubbles. Oh, I

NOTE Confidence: 0.8493294

01:10:02.910 --> 01:10:05.760 see that. Yeah, yeah, yeah.

NOTE Confidence: 0.8493294

01:10:05.760 --> 01:10:09.287 So OK, so there's two questions on Q&A,

NOTE Confidence: 0.8493294

01:10:09.290 --> 01:10:11.495 so that's where we can

NOTE Confidence: 0.8493294

01:10:11.495 --> 01:10:13.259 work with the questions.

NOTE Confidence: 0.8493294

01:10:13.260 --> 01:10:15.024 So first, does dexamethasone

NOTE Confidence: 0.8493294

01:10:15.024 --> 01:10:16.788 contribute to tumor growth?

NOTE Confidence: 0.812429

01:10:19.100 --> 01:10:21.220 Nicola, I can take on that

NOTE Confidence: 0.812429

01:10:21.220 --> 01:10:24.254 question, so I think that's an excellent

NOTE Confidence: 0.812429

01:10:24.254 --> 01:10:27.200 question and that is something that

NOTE Confidence: 0.812429

01:10:27.282 --> 01:10:30.019 people have asked for a long time.

NOTE Confidence: 0.812429

01:10:30.020 --> 01:10:32.245 The concern came from the

NOTE Confidence: 0.812429

01:10:32.245 --> 01:10:34.025 literature in prostate cancer,

NOTE Confidence: 0.812429

01:10:34.030 --> 01:10:36.665 where many preclinical studies were

NOTE Confidence: 0.812429

01:10:36.665 --> 01:10:39.798 done raising concerns about the use

NOTE Confidence: 0.812429

01:10:39.798 --> 01:10:43.134 of steroids and how they could have a

NOTE Confidence: 0.812429

01:10:43.134 --> 01:10:45.438 detrimental effect on tumor growth.

NOTE Confidence: 0.812429

01:10:45.440 --> 01:10:49.718 So in gliomas this has not

NOTE Confidence: 0.812429

01:10:49.718 --> 01:10:54.070 been so clear we dislike.

NOTE Confidence: 0.812429

01:10:54.070 --> 01:10:58.466 Spirit becausw of the many side effects,

NOTE Confidence: 0.812429

01:10:58.470 --> 01:11:01.920 particularly proximal myopathy.

NOTE Confidence: 0.812429

01:11:01.920 --> 01:11:03.324 Increase in hyperglycemia.

NOTE Confidence: 0.812429

01:11:03.324 --> 01:11:05.679 In fact, hyperglycemia itself is

NOTE Confidence: 0.812429

01:11:05.679 --> 01:11:08.517 a well known factor that actually

NOTE Confidence: 0.812429

01:11:08.517 --> 01:11:10.881 induces tumor growth and is

NOTE Confidence: 0.812429

01:11:10.881 --> 01:11:13.146 associated with the worst prognosis.

NOTE Confidence: 0.812429

01:11:13.150 --> 01:11:15.958 So it wasn't an indirect effect,

NOTE Confidence: 0.812429

01:11:15.960 --> 01:11:18.860 but not necessarily a direct

NOTE Confidence: 0.812429

01:11:18.860 --> 01:11:21.180 effect of the steroids.

NOTE Confidence: 0.812429

01:11:21.180 --> 01:11:24.186 But in terms of direct effects on the tumor,

NOTE Confidence: 0.812429

01:11:24.190 --> 01:11:26.968 we were sort of reassured by

NOTE Confidence: 0.812429

01:11:26.968 --> 01:11:28.820 the literature on Avastin.

NOTE Confidence: 0.812429

01:11:28.820 --> 01:11:30.490 And that is the cause.

NOTE Confidence: 0.812429

01:11:30.490 --> 01:11:32.150 People who receive the vast

NOTE Confidence: 0.812429

01:11:32.150 --> 01:11:33.478 and use less spirits,

NOTE Confidence: 0.812429

01:11:33.480 --> 01:11:36.024 and yet they did not live longer than

NOTE Confidence: 0.812429

01:11:36.024 --> 01:11:38.356 patient that actually were on the control

NOTE Confidence: 0.812429

01:11:38.356 --> 01:11:40.809 arms and receive a lot of steroids.

NOTE Confidence: 0.812429

01:11:40.810 --> 01:11:43.134 And then they lived just as long.

NOTE Confidence: 0.812429

01:11:43.140 --> 01:11:45.345 So that's sort of reassuring in terms

NOTE Confidence: 0.812429

01:11:45.345 --> 01:11:48.127 of that is not having a direct effect.

NOTE Confidence: 0.812429

01:11:48.130 --> 01:11:48.764 But again,

NOTE Confidence: 0.812429

01:11:48.764 --> 01:11:50.349 steroids have lots of other

NOTE Confidence: 0.812429

01:11:50.349 --> 01:11:51.800 and Intendant side effects,

NOTE Confidence: 0.812429

01:11:51.800 --> 01:11:56.174 and we try to avoid the use of those.

NOTE Confidence: 0.812429

01:11:56.180 --> 01:11:58.556 And I think the IT is a huge

NOTE Confidence: 0.812429

01:11:58.556 --> 01:12:02.290 issue for us if we want to develop

NOTE Confidence: 0.812429

01:12:02.290 --> 01:12:03.308 successful immunotherapy's.

NOTE Confidence: 0.812429

01:12:03.310 --> 01:12:05.554 So that is potentially the main

NOTE Confidence: 0.812429

01:12:05.554 --> 01:12:08.060 issue right now with the steroids.

NOTE Confidence: 0.812429

01:12:08.060 --> 01:12:10.430 Patients with that are on high

NOTE Confidence: 0.812429

01:12:10.430 --> 01:12:11.615 dose of steroids.

NOTE Confidence: 0.812429

01:12:11.620 --> 01:12:12.808 They're basically excluded

NOTE Confidence: 0.812429

01:12:12.808 --> 01:12:13.996 from immunotherapy trials.

NOTE Confidence: 0.8819109

01:12:16.040 --> 01:12:18.788 And of course, from a surgical perspective,

NOTE Confidence: 0.8819109

01:12:18.790 --> 01:12:22.876 wound healing is always a concern.

NOTE Confidence: 0.8819109

01:12:22.880 --> 01:12:26.098 OK, on to the next one.

NOTE Confidence: 0.8819109

01:12:26.100 --> 01:12:28.110 Is there any investigation of

NOTE Confidence: 0.8819109

01:12:28.110 --> 01:12:30.120 the utility of hypo methylating?

NOTE Confidence: 0.8819109

01:12:30.120 --> 01:12:32.927 I think that is agents in neurooncology.

NOTE Confidence: 0.80751765

01:12:35.550 --> 01:12:37.290 I'm in love.

NOTE Confidence: 0.80751765

01:12:37.290 --> 01:12:39.257 Those have been studied in the past,

NOTE Confidence: 0.80751765

01:12:39.260 --> 01:12:42.920 and the studies were not successful.

NOTE Confidence: 0.80751765

01:12:42.920 --> 01:12:45.686 It was some years ago even.

NOTE Confidence: 0.80751765

01:12:45.690 --> 01:12:47.712 I can't remember the name of

NOTE Confidence: 0.80751765

01:12:47.712 --> 01:12:49.740 the name of that product,

NOTE Confidence: 0.80751765

01:12:49.740 --> 01:12:52.404 but the theory was to induce

NOTE Confidence: 0.80751765

01:12:52.404 --> 01:12:54.180 methylation with another drug

NOTE Confidence: 0.80751765

01:12:54.263 --> 01:12:56.789 and it just didn't seem to

NOTE Confidence: 0.80751765

01:12:56.789 --> 01:12:58.473 alter outcomes for patients.

NOTE Confidence: 0.80751765

01:12:58.480 --> 01:12:59.632 Not sure doctor Moreau,

NOTE Confidence: 0.80751765

01:12:59.632 --> 01:13:01.850 if you recall more about that product.

NOTE Confidence: 0.8231682

01:13:03.200 --> 01:13:06.560 Well, there's a host of.

NOTE Confidence: 0.8231682

01:13:06.560 --> 01:13:08.412 Preclinical data on days,

NOTE Confidence: 0.8231682

01:13:08.412 --> 01:13:11.190 particularly in I DH mutant tumors,

NOTE Confidence: 0.8231682

01:13:11.190 --> 01:13:14.424 I think the jury is still out.

NOTE Confidence: 0.8231682

01:13:14.430 --> 01:13:17.926 I have used some of these agents off

NOTE Confidence: 0.8231682

01:13:17.926 --> 01:13:21.380 label and I have not seen responses,

NOTE Confidence: 0.8231682

01:13:21.380 --> 01:13:23.642 but the reality that good clinical

NOTE Confidence: 0.8231682

01:13:23.642 --> 01:13:25.762 trials that are more informative

NOTE Confidence: 0.8231682

01:13:25.762 --> 01:13:28.467 have not been conducted especially

NOTE Confidence: 0.8231682

01:13:28.467 --> 01:13:30.631 selected for ideating mutations,

NOTE Confidence: 0.8231682

01:13:30.640 --> 01:13:34.336 and I can also that doctor Bender comment

NOTE Confidence: 0.79105045

01:13:34.340 --> 01:13:36.028 on this wonderful question.

NOTE Confidence: 0.79105045

01:13:36.028 --> 01:13:38.560 There was a trial with Vorinostat

NOTE Confidence: 0.79105045

01:13:38.632 --> 01:13:40.636 and radiation led by the NCI.

NOTE Confidence: 0.79105045

01:13:40.640 --> 01:13:41.940 It was not randomized.

NOTE Confidence: 0.79105045

01:13:41.940 --> 01:13:43.890 Had had some good results but

NOTE Confidence: 0.79105045

01:13:43.954 --> 01:13:45.454 really wasn't robust enough

NOTE Confidence: 0.79105045

01:13:45.454 --> 01:13:47.216 to move forward and start.

NOTE Confidence: 0.79105045

01:13:47.216 --> 01:13:48.600 Romero mention the Vid.

NOTE Confidence: 0.79105045

01:13:48.600 --> 01:13:50.330 HD methylating story is really

NOTE Confidence: 0.79105045

01:13:50.330 --> 01:13:52.060 unfolding in the AML world.

NOTE Confidence: 0.79105045

01:13:52.060 --> 01:13:54.085 There's a lot of interesting

NOTE Confidence: 0.79105045

01:13:54.085 --> 01:13:56.110 combinations and I do believe

NOTE Confidence: 0.79105045

01:13:56.184 --> 01:13:58.081 it will be making its way up

NOTE Confidence: 0.79105045

01:13:58.081 --> 01:13:59.668 in the context of combination

NOTE Confidence: 0.79105045

01:13:59.670 --> 01:14:01.058 therapies is certainly more

NOTE Confidence: 0.7809431

01:14:01.060 --> 01:14:02.089 to learn too.

NOTE Confidence: 0.8832164

01:14:04.760 --> 01:14:07.784 OK, next question. Have you had any

NOTE Confidence: 0.8832164

01:14:07.784 --> 01:14:09.810 experience with personal vaccines?

NOTE Confidence: 0.86056554

01:14:14.900 --> 01:14:17.618 Well, I can comment on that,

NOTE Confidence: 0.86056554

01:14:17.620 --> 01:14:22.788 so I think vaccines are working for us.

NOTE Confidence: 0.86056554

01:14:22.790 --> 01:14:25.774 The majority or most all of the vaccines

NOTE Confidence: 0.86056554

01:14:25.774 --> 01:14:28.847 have not been out in randomized trials

NOTE Confidence: 0.86056554

01:14:28.847 --> 01:14:31.710 and welcomed up to randomized trials.

NOTE Confidence: 0.86056554

01:14:31.710 --> 01:14:35.238 So I've done several trials of those,

NOTE Confidence: 0.86056554

01:14:35.240 --> 01:14:37.252 including the Greek salad

NOTE Confidence: 0.86056554

01:14:37.252 --> 01:14:39.767 scenes from the same patient.

NOTE Confidence: 0.86056554

01:14:39.770 --> 01:14:42.843 There are trials now that runs are

NOTE Confidence: 0.86056554

01:14:42.843 --> 01:14:45.819 getting better and more sophisticated,

NOTE Confidence: 0.86056554

01:14:45.820 --> 01:14:49.210 but vaccines by themselves are still

NOTE Confidence: 0.86056554

01:14:49.210 --> 01:14:53.967 to find a niche in College in general.

NOTE Confidence: 0.86056554

01:14:53.970 --> 01:14:54.377 Unfortunately,

NOTE Confidence: 0.86056554

01:14:54.377 --> 01:14:57.226 most of the trials have been negative,

NOTE Confidence: 0.86056554

01:14:57.230 --> 01:15:00.345 so I think vaccines may be part

NOTE Confidence: 0.86056554

01:15:00.345 --> 01:15:03.170 of the answer in the future.

NOTE Confidence: 0.86056554

01:15:03.170 --> 01:15:07.640 But on their own. It is going to be again.

NOTE Confidence: 0.86056554

01:15:07.640 --> 01:15:09.170 It's a work in progress.

NOTE Confidence: 0.856249300000001

01:15:10.680 --> 01:15:13.820 My thought is to be very complex to make the

NOTE Confidence: 0.856249300000001

01:15:13.899 --> 01:15:16.601 vaccine product was involved with a study

NOTE Confidence: 0.856249300000001

01:15:16.601 --> 01:15:19.434 to develop a heat shock protein vaccine

NOTE Confidence: 0.856249300000001

01:15:19.434 --> 01:15:23.224 from tumor tissue like say an it was just a

NOTE Confidence: 0.856249300000001

01:15:23.224 --> 01:15:25.930 very complex product to generate the vaccine.

NOTE Confidence: 0.856249300000001

01:15:25.930 --> 01:15:28.044 Then the second issue being even if

NOTE Confidence: 0.856249300000001

01:15:28.044 --> 01:15:30.399 the vaccine is generated successfully,

NOTE Confidence: 0.856249300000001

01:15:30.400 --> 01:15:32.984 there can be factors within the patient that

NOTE Confidence: 0.856249300000001

01:15:32.984 --> 01:15:35.597 inhibit the vaccine from working effectively.

NOTE Confidence: 0.856249300000001

01:15:35.600 --> 01:15:38.204 We don't understand really what those are.

NOTE Confidence: 0.856249300000001

01:15:38.210 --> 01:15:39.722 Probably the biggest vaccine

NOTE Confidence: 0.856249300000001

01:15:39.722 --> 01:15:41.612 story is a vaccine against.

NOTE Confidence: 0.856249300000001

01:15:41.620 --> 01:15:43.264 EGFR V3 called Rindopepimut,

NOTE Confidence: 0.856249300000001

01:15:43.264 --> 01:15:45.319 which seemed to have great

NOTE Confidence: 0.856249300000001

01:15:45.319 --> 01:15:47.108 data in earlier studies.

NOTE Confidence: 0.856249300000001

01:15:47.110 --> 01:15:49.220 Phase two studies and then,

NOTE Confidence: 0.856249300000001

01:15:49.220 --> 01:15:51.325 when studied in the pivotal

NOTE Confidence: 0.856249300000001

01:15:51.325 --> 01:15:52.588 trial phase three,

NOTE Confidence: 0.856249300000001

01:15:52.590 --> 01:15:54.290 appeared to be completely

NOTE Confidence: 0.856249300000001

01:15:54.290 --> 01:15:55.990 ineffective to improve survival

NOTE Confidence: 0.856249300000001

01:15:55.990 --> 01:15:58.078 of patients with the biomarker,

NOTE Confidence: 0.856249300000001

01:15:58.080 --> 01:16:01.560 and it's still unclear to me.

NOTE Confidence: 0.856249300000001

01:16:01.560 --> 01:16:03.590 What exactly the factor is?

NOTE Confidence: 0.856249300000001

01:16:03.590 --> 01:16:05.630 And it's probably a number of

NOTE Confidence: 0.856249300000001

01:16:05.630 --> 01:16:08.107 factors related to the G BM

NOTE Confidence: 0.856249300000001

01:16:08.107 --> 01:16:09.676 suppressed immune microenvironment.

NOTE Confidence: 0.89510596

01:16:12.920 --> 01:16:15.546 OK. Next question,

NOTE Confidence: 0.89510596

01:16:15.546 --> 01:16:18.376 will it be possible? I just lost it.

NOTE Confidence: 0.89510596

01:16:18.376 --> 01:16:21.732 Will it be possible to use protons on a

NOTE Confidence: 0.89510596

01:16:21.732 --> 01:16:24.462 meningioma that's in the cavernous sinus,

NOTE Confidence: 0.89510596

01:16:24.470 --> 01:16:27.566 which is next to the pituitary gland in

NOTE Confidence: 0.89510596

01:16:27.570 --> 01:16:30.290 the optic nerve from a surgical perspective,

NOTE Confidence: 0.89510596

01:16:30.290 --> 01:16:32.456 few things I would comment on

NOTE Confidence: 0.89510596

01:16:32.456 --> 01:16:34.560 and then Ranjeet can comment.

NOTE Confidence: 0.89510596

01:16:34.560 --> 01:16:37.152 So these primarily sphenoid wing really

NOTE Confidence: 0.89510596

01:16:37.152 --> 01:16:39.357 meningiomas or skull base meningiomas

NOTE Confidence: 0.89510596

01:16:39.357 --> 01:16:42.192 were actually in the process of studying

NOTE Confidence: 0.89510596

01:16:42.192 --> 01:16:44.937 them and those were some of the ones.

NOTE Confidence: 0.89510596

01:16:44.940 --> 01:16:47.454 Where the genomic driver mutation can

NOTE Confidence: 0.89510596

01:16:47.454 --> 01:16:49.960 really determine how we treat them,

NOTE Confidence: 0.89510596

01:16:49.960 --> 01:16:54.550 or at least how we use it in our tumor board.

NOTE Confidence: 0.89510596

01:16:54.550 --> 01:16:56.555 So sometimes depending if there's

NOTE Confidence: 0.89510596

01:16:56.555 --> 01:16:59.021 a component of that tumor that's

NOTE Confidence: 0.89510596

01:16:59.021 --> 01:17:01.343 a little bit more exophytic that

NOTE Confidence: 0.89510596

01:17:01.343 --> 01:17:03.330 can be surgically accessible,

NOTE Confidence: 0.89510596

01:17:03.330 --> 01:17:06.738 we will advocate for the removal

NOTE Confidence: 0.89510596

01:17:06.738 --> 01:17:09.010 of part of that.

NOTE Confidence: 0.89510596

01:17:09.010 --> 01:17:11.130 Also one option as well,

NOTE Confidence: 0.89510596

01:17:11.130 --> 01:17:13.979 which we have done too is if

NOTE Confidence: 0.89510596

01:17:13.979 --> 01:17:16.219 the optic nerve is nearby.

NOTE Confidence: 0.89510596

01:17:16.220 --> 01:17:18.812 If we can decompress the optic

NOTE Confidence: 0.89510596

01:17:18.812 --> 01:17:21.540 nerve from a surgical standpoint.

NOTE Confidence: 0.89510596

01:17:21.540 --> 01:17:23.712 That can help preserve vision or

NOTE Confidence: 0.89510596

01:17:23.712 --> 01:17:25.920 even have the return of vision.

NOTE Confidence: 0.89510596

01:17:25.920 --> 01:17:28.181 I actually did a case like that

NOTE Confidence: 0.89510596

01:17:28.181 --> 01:17:31.002 just a few days ago last week and

NOTE Confidence: 0.89510596

01:17:31.002 --> 01:17:33.271 then also that can help preserve

NOTE Confidence: 0.89510596

01:17:33.271 --> 01:17:35.779 the vision in the other side,

NOTE Confidence: 0.89510596

01:17:35.780 --> 01:17:38.723 so usually at least in our in our hands

NOTE Confidence: 0.89510596

01:17:38.723 --> 01:17:41.618 we like to exhaust all the options,

NOTE Confidence: 0.89510596

01:17:41.620 --> 01:17:43.775 understand the tumor from a

NOTE Confidence: 0.89510596

01:17:43.775 --> 01:17:45.930 genomic standpoint for ones that

NOTE Confidence: 0.89510596

01:17:46.008 --> 01:17:47.948 clearly don't need surgery.

NOTE Confidence: 0.89510596

01:17:47.950 --> 01:17:50.330 I think we way different factors into

NOTE Confidence: 0.89510596

01:17:50.330 --> 01:17:52.700 when we radiate or or don't radiate.

NOTE Confidence: 0.89510596

01:17:52.700 --> 01:17:54.933 You know in terms of the patients

NOTE Confidence: 0.89510596

01:17:54.933 --> 01:17:57.365 age and follow up and growth and

NOTE Confidence: 0.89510596

01:17:57.365 --> 01:17:59.477 symptomatic and that sort of thing.

NOTE Confidence: 0.89510596

01:17:59.480 --> 01:18:02.234 But I do think genomics plays a big role

NOTE Confidence: 0.89510596

01:18:02.234 --> 01:18:04.898 in the Genomic driver of the tumor.

NOTE Confidence: 0.89510596

01:18:04.900 --> 01:18:05.240 Rinji

NOTE Confidence: 0.8323278

01:18:05.240 --> 01:18:07.291 Yeah, it is really really great question

NOTE Confidence: 0.8323278

01:18:07.291 --> 01:18:09.015 and actually your response highlights

NOTE Confidence: 0.8323278

01:18:09.015 --> 01:18:11.000 what's great about the institution.

NOTE Confidence: 0.8323278

01:18:11.000 --> 01:18:12.758 We have such a close relationship

NOTE Confidence: 0.8323278

01:18:12.758 --> 01:18:14.782 with all members of the neurosurgery

NOTE Confidence: 0.8323278

01:18:14.782 --> 01:18:16.772 neurology radiation oncology team talking

NOTE Confidence: 0.8323278

01:18:16.772 --> 01:18:19.239 about what is the best modality and.

NOTE Confidence: 0.8323278

01:18:19.240 --> 01:18:21.347 And often you know we start with

NOTE Confidence: 0.8323278

01:18:21.347 --> 01:18:23.599 surgery and if radiation is needed,

NOTE Confidence: 0.8323278

01:18:23.600 --> 01:18:26.300 you can think about things like the icon in

NOTE Confidence: 0.8323278

01:18:26.300 --> 01:18:29.287 the gamma knife that we talked about earlier,

NOTE Confidence: 0.8323278

01:18:29.290 --> 01:18:30.835 which actually has the same

NOTE Confidence: 0.8323278

01:18:30.835 --> 01:18:32.380 dose distribution as Protons And

NOTE Confidence: 0.8323278

01:18:32.434 --> 01:18:33.978 if not fractionated radiation.

NOTE Confidence: 0.8323278

01:18:33.980 --> 01:18:36.230 And the question there is whether

NOTE Confidence: 0.8323278

01:18:36.230 --> 01:18:38.645 you would need protons most of the

NOTE Confidence: 0.8323278

01:18:38.645 --> 01:18:41.020 times we don't feel there is a need.

NOTE Confidence: 0.8323278

01:18:41.020 --> 01:18:42.620 If the patient needs radiation

NOTE Confidence: 0.8323278

01:18:42.620 --> 01:18:44.976 we can do quite well with gamma

NOTE Confidence: 0.8323278

01:18:44.976 --> 01:18:47.046 knife or using our regular Linux,

NOTE Confidence: 0.8323278

01:18:47.050 --> 01:18:49.479 so to speak, but there are certainly

NOTE Confidence: 0.8323278

01:18:49.479 --> 01:18:51.738 cases we send to referral for protons.

NOTE Confidence: 0.8323278

01:18:51.740 --> 01:18:52.739 So wonderful question.

NOTE Confidence: 0.867996

01:18:55.630 --> 01:18:57.235 In wonderful response,

NOTE Confidence: 0.867996

01:18:57.235 --> 01:18:59.375 can supplements like antioxidants

NOTE Confidence: 0.867996

01:18:59.375 --> 01:19:02.952 etc be used during radio and chemo

NOTE Confidence: 0.867996

01:19:02.952 --> 01:19:05.784 treatment that are there studies that

NOTE Confidence: 0.867996

01:19:05.867 --> 01:19:08.857 suggest a possible beneficial outcome?

NOTE Confidence: 0.7970472

01:19:12.700 --> 01:19:14.380 Vitamin C can avoid the

NOTE Confidence: 0.7970472

01:19:14.380 --> 01:19:17.228 biggest issue is that.

NOTE Confidence: 0.7970472

01:19:17.230 --> 01:19:19.954 Studies and supplements are.

NOTE Confidence: 0.7970472

01:19:19.954 --> 01:19:22.882 Difficult to study, some maybe.

NOTE Confidence: 0.7970472

01:19:22.882 --> 01:19:25.087 Plant based or botanical products

NOTE Confidence: 0.7970472

01:19:25.087 --> 01:19:27.642 which are even more complicated

NOTE Confidence: 0.7970472

01:19:27.642 --> 01:19:29.946 to study than Pharmaceuticals.

NOTE Confidence: 0.7970472

01:19:29.950 --> 01:19:35.110 So there really is no great data behind.

NOTE Confidence: 0.7970472

01:19:35.110 --> 01:19:36.154 Of these studies,

NOTE Confidence: 0.7970472

01:19:36.154 --> 01:19:37.546 unfortunately behind you know,

NOTE Confidence: 0.7970472

01:19:37.550 --> 01:19:38.950 except for some limited

NOTE Confidence: 0.7970472

01:19:38.950 --> 01:19:40.350 lab or preclinical data.

NOTE Confidence: 0.7970472

01:19:40.350 --> 01:19:42.444 So in terms of using supplements

NOTE Confidence: 0.7970472

01:19:42.444 --> 01:19:43.840 and my personal practice,

NOTE Confidence: 0.7970472

01:19:43.840 --> 01:19:46.144 I do have some patients that

NOTE Confidence: 0.7970472

01:19:46.144 --> 01:19:47.680 are interested in supplements

NOTE Confidence: 0.7970472

01:19:47.746 --> 01:19:49.066 and opt to use them,

NOTE Confidence: 0.7970472

01:19:49.070 --> 01:19:51.074 and I help guide the patient

NOTE Confidence: 0.7970472

01:19:51.074 --> 01:19:53.383 to make sure that the use is

NOTE Confidence: 0.7970472

01:19:53.383 --> 01:19:55.469 what I consider to be safe and

NOTE Confidence: 0.7970472

01:19:55.545 --> 01:19:57.800 not detrimental to the patient.

NOTE Confidence: 0.89046276

01:19:59.540 --> 01:20:00.600 Yeah, I would add that.

NOTE Confidence: 0.89046276

01:20:00.600 --> 01:20:02.696 Certain supplements actually may

NOTE Confidence: 0.89046276

01:20:02.696 --> 01:20:06.284 result in worse outcomes and this has

NOTE Confidence: 0.89046276

01:20:06.284 --> 01:20:09.172 come out in many studies in the past.

NOTE Confidence: 0.89046276

01:20:09.180 --> 01:20:11.610 I think in terms of antioxidants,

NOTE Confidence: 0.89046276

01:20:11.610 --> 01:20:14.438 I think they are.

NOTE Confidence: 0.89046276

01:20:14.440 --> 01:20:16.260 But is not recommended during

NOTE Confidence: 0.89046276

01:20:16.260 --> 01:20:18.880 the radiation and I can defer to

NOTE Confidence: 0.89046276

01:20:18.880 --> 01:20:21.046 doctor Bender to comment on that,

NOTE Confidence: 0.89046276

01:20:21.050 --> 01:20:22.814 but typically high dose

NOTE Confidence: 0.89046276

01:20:22.814 --> 01:20:25.019 of anti oxidants is our.

NOTE Confidence: 0.89046276

01:20:25.020 --> 01:20:28.998 Typically not preferred during the radiation.

NOTE Confidence: 0.8462905

01:20:29.880 --> 01:20:32.064 Yeah, we always get a little bit

NOTE Confidence: 0.8462905

01:20:32.064 --> 01:20:34.147 worried because the way the vitamin C,

NOTE Confidence: 0.8462905

01:20:34.150 --> 01:20:35.680 the structure and Whatnot is,

NOTE Confidence: 0.8462905

01:20:35.680 --> 01:20:37.510 it's it's a free radical Scavengers.

NOTE Confidence: 0.8462905

01:20:37.510 --> 01:20:39.030 We've sort of alluded to,

NOTE Confidence: 0.8462905

01:20:39.030 --> 01:20:40.860 and so it can actually block

139

NOTE Confidence: 0.8462905

01:20:40.860 --> 01:20:42.080 the effects of radiation

NOTE Confidence: 0.847554612

01:20:42.080 --> 01:20:44.280 on tumor damage so. No,

NOTE Confidence: 0.85261106

01:20:44.280 --> 01:20:46.446 say it's true. 'cause he always

NOTE Confidence: 0.85261106

01:20:46.446 --> 01:20:49.027 stops the vitamin C that I put

NOTE Confidence: 0.85261106

01:20:49.027 --> 01:20:50.797 my patients on after surgery.

NOTE Confidence: 0.85261106

01:20:50.800 --> 01:20:54.430 And I don't argue. I think

NOTE Confidence: 0.87005025

01:20:54.430 --> 01:20:56.395 for long-term patients

NOTE Confidence: 0.87005025

01:20:56.395 --> 01:20:59.015 that are using supplements.

NOTE Confidence: 0.87005025

01:20:59.020 --> 01:21:00.802 You know, it's unclear to me

NOTE Confidence: 0.87005025

01:21:00.802 --> 01:21:01.990 that these are detrimental,

NOTE Confidence: 0.87005025

01:21:01.990 --> 01:21:03.470 but perhaps they could be

NOTE Confidence: 0.87005025

01:21:03.470 --> 01:21:04.654 beneficial to select patients.

NOTE Confidence: 0.87005025

01:21:04.660 --> 01:21:07.000 But again, we can't tell prospectively

NOTE Confidence: 0.87005025

01:21:07.000 --> 01:21:09.020 who will benefit from these.

NOTE Confidence: 0.87005025

01:21:09.020 --> 01:21:10.946 Yeah, it's just that's an important

NOTE Confidence: 0.87005025

01:21:10.946 --> 01:21:13.025 factor to keep in mind when

NOTE Confidence: 0.87005025

01:21:13.025 --> 01:21:15.209 considering any kind of supplement and

NOTE Confidence: 0.8355488

01:21:15.210 --> 01:21:16.930 gender somebod 2 chat questions

NOTE Confidence: 0.8355488

01:21:16.930 --> 01:21:18.306 just to oscillate back.

NOTE Confidence: 0.8355488

01:21:18.310 --> 01:21:20.025 I see quite interesting as

NOTE Confidence: 0.8355488

01:21:20.025 --> 01:21:21.750 do the other questions too.

NOTE Confidence: 0.8355488

01:21:21.750 --> 01:21:22.779 Alright, so will

NOTE Confidence: 0.8355488

01:21:22.780 --> 01:21:24.156 make these are last.

NOTE Confidence: 0.8355488

01:21:24.156 --> 01:21:25.876 It looks like 5 total,

NOTE Confidence: 0.8355488

01:21:25.880 --> 01:21:28.316 so given there is a significant number

NOTE Confidence: 0.8355488

01:21:28.316 --> 01:21:31.037 of tumors who have the TP 53 mutation,

NOTE Confidence: 0.8355488

01:21:31.040 --> 01:21:33.104 are there any current or upcoming

NOTE Confidence: 0.8355488

01:21:33.104 --> 01:21:34.480 trials that target this?

NOTE Confidence: 0.8355488

01:21:34.480 --> 01:21:36.538 And Mike also said thank you,

NOTE Confidence: 0.8355488

01:21:36.540 --> 01:21:37.569 so thank you.

NOTE Confidence: 0.84418577

01:21:39.970 --> 01:21:41.820 So yeah, I'll take that.

NOTE Confidence: 0.84418577

01:21:41.820 --> 01:21:44.564 It is interesting that given some of

NOTE Confidence: 0.84418577

01:21:44.564 --> 01:21:46.828 these mutations that are so common

NOTE Confidence: 0.84418577

01:21:46.828 --> 01:21:48.850 that we haven't had a therapy,

NOTE Confidence: 0.84418577

01:21:48.850 --> 01:21:50.740 there are trials in development

NOTE Confidence: 0.84418577

01:21:50.740 --> 01:21:52.920 targeting a related protein called MDM.

NOTE Confidence: 0.84418577

01:21:52.920 --> 01:21:55.014 Two or MDM two inhibitors which

NOTE Confidence: 0.84418577

01:21:55.014 --> 01:21:57.359 actually act in this same pathway.

NOTE Confidence: 0.84418577

01:21:57.360 --> 01:21:58.840 So I think surprisingly,

NOTE Confidence: 0.84418577

01:21:58.840 --> 01:22:00.320 there's not been enough.

NOTE Confidence: 0.84418577

01:22:00.320 --> 01:22:02.170 It's been difficult to target

NOTE Confidence: 0.84418577

01:22:02.170 --> 01:22:04.390 that Mutation 50% of all cancers

NOTE Confidence: 0.84418577

01:22:04.390 --> 01:22:06.240 actually have this mutation there,

NOTE Confidence: 0.84418577

01:22:06.240 --> 01:22:07.824 certainly new therapies around

NOTE Confidence: 0.84418577

01:22:07.824 --> 01:22:10.200 the bend that are trying to.

NOTE Confidence: 0.84418577

01:22:10.200 --> 01:22:12.920 Attack this axis. Yeah,

NOTE Confidence: 0.792533

01:22:12.920 --> 01:22:16.371 there are some compounds that are entering

NOTE Confidence: 0.792533

01:22:16.371 --> 01:22:19.462 clinical trials that are mutant P53

NOTE Confidence: 0.792533

01:22:19.462 --> 01:22:22.007 reactivating compounds and but again,

NOTE Confidence: 0.792533

01:22:22.010 --> 01:22:25.538 there are initial stages of clinical trials.

NOTE Confidence: 0.792533

01:22:25.540 --> 01:22:31.840 And then we'll see if that pans out. Next,

NOTE Confidence: 0.8665333

01:22:31.840 --> 01:22:34.126 is there any potential benefits of

NOTE Confidence: 0.8665333

01:22:34.126 --> 01:22:36.091 starting the optune immediately following

NOTE Confidence: 0.8665333

01:22:36.091 --> 01:22:38.765 radiotherapy instead of waiting until TM Z?

NOTE Confidence: 0.8665333

01:22:38.770 --> 01:22:41.446 Is there any proven benefit for

NOTE Confidence: 0.8665333

01:22:41.446 --> 01:22:44.610 patients that wear it more than the

NOTE Confidence: 0.8665333

01:22:44.610 --> 01:22:47.500 recommended 18 hours a day? Nick, so

NOTE Confidence: 0.8210898

01:22:47.500 --> 01:22:48.852 in the pivotal trial,

NOTE Confidence: 0.8210898

01:22:48.852 --> 01:22:50.542 optune was initiated four to

NOTE Confidence: 0.8210898

01:22:50.542 --> 01:22:52.091 seven weeks after completing

NOTE Confidence: 0.8210898

01:22:52.091 --> 01:22:54.383 radiation and then used with that.

NOTE Confidence: 0.8210898

01:22:54.390 --> 01:22:56.135 Amazon might cycles and could

NOTE Confidence: 0.8210898

01:22:56.135 --> 01:22:57.880 be continued actually until the

NOTE Confidence: 0.8210898

01:22:57.947 --> 01:22:59.837 second progression for a patient.

NOTE Confidence: 0.8210898

01:22:59.840 --> 01:23:01.288 So that's the current

NOTE Confidence: 0.8210898

01:23:01.288 --> 01:23:02.736 indication for the device.

NOTE Confidence: 0.8210898

01:23:02.740 --> 01:23:04.792 There have been 2 pilot studies

NOTE Confidence: 0.8210898

01:23:04.792 --> 01:23:06.613 done where option was initiated

NOTE Confidence: 0.8210898

01:23:06.613 --> 01:23:08.548 at the start of radiation,

NOTE Confidence: 0.8210898

01:23:08.550 --> 01:23:10.370 and patients use the device.

NOTE Confidence: 0.8210898

01:23:10.370 --> 01:23:11.885 Actually during radiation

NOTE Confidence: 0.8210898

01:23:11.885 --> 01:23:13.400 treatment and following.

NOTE Confidence: 0.8210898

01:23:13.400 --> 01:23:15.560 And those seem to indicate some

NOTE Confidence: 0.8210898

01:23:15.560 --> 01:23:17.330 benefit to starting out too.

NOTE Confidence: 0.8210898

01:23:17.330 --> 01:23:19.466 That way without additional skin toxicity,

NOTE Confidence: 0.8210898

01:23:19.470 --> 01:23:21.668 so a large phase three study is

NOTE Confidence: 0.8210898

01:23:21.668 --> 01:23:23.750 planned to test this hypothesis.

NOTE Confidence: 0.8210898

144

01:23:23.750 --> 01:23:25.675 Starting optune at the beginning

NOTE Confidence: 0.8210898

01:23:25.675 --> 01:23:28.014 of radiation versus at the start

NOTE Confidence: 0.8210898

01:23:28.014 --> 01:23:30.436 at the end of radiation that should

NOTE Confidence: 0.8210898

01:23:30.436 --> 01:23:32.499 be starting up next year and

NOTE Confidence: 0.8210898

01:23:32.499 --> 01:23:34.455 then in terms of treatment usage,

NOTE Confidence: 0.8210898

01:23:34.460 --> 01:23:36.250 there is actually incremental benefit,

NOTE Confidence: 0.8210898

01:23:36.250 --> 01:23:39.820 so the more a person is able to utilize it,

NOTE Confidence: 0.8210898

01:23:39.820 --> 01:23:41.605 the better the average survival

NOTE Confidence: 0.8210898

01:23:41.605 --> 01:23:43.390 would be for a patient,

NOTE Confidence: 0.8210898

01:23:43.390 --> 01:23:44.846 particularly those that can.

NOTE Confidence: 0.8210898

01:23:44.846 --> 01:23:47.556 Steve above 90% usage month to month.

NOTE Confidence: 0.8210898

01:23:47.556 --> 01:23:50.476 They had a longer survival time than

NOTE Confidence: 0.8210898

01:23:50.476 --> 01:23:53.409 patients that had less usage in the

NOTE Confidence: 0.8210898

01:23:53.409 --> 01:23:55.785 pivotal trial. Yeah, the caveat.

NOTE Confidence: 0.8210898

01:23:55.785 --> 01:23:56.300 Taking

NOTE Confidence: 0.7725349

01:23:56.300 --> 01:23:57.322 skin toxicity.

NOTE Confidence: 0.7725349

01:23:57.322 --> 01:23:59.366 Patients cannot do that,

NOTE Confidence: 0.7725349

01:23:59.370 --> 01:24:02.442 and it's really difficult for them

NOTE Confidence: 0.7725349

01:24:02.442 --> 01:24:06.353 to use optune 100% of the time.

NOTE Confidence: 0.7725349

01:24:06.353 --> 01:24:10.079 So it is a cumbersome device.

NOTE Confidence: 0.7725349

01:24:10.080 --> 01:24:12.260 Then it is very individual.

NOTE Confidence: 0.7725349

01:24:12.260 --> 01:24:14.913 I mean the choice of using the

NOTE Confidence: 0.7725349

01:24:14.913 --> 01:24:17.598 device and how that impacts their

NOTE Confidence: 0.7725349

01:24:17.598 --> 01:24:20.520 quality of life is very personal.

NOTE Confidence: 0.7725349

01:24:20.520 --> 01:24:22.968 Many patients choose not to go

NOTE Confidence: 0.7725349

01:24:22.968 --> 01:24:26.053 that route and that is the cause

NOTE Confidence: 0.7725349

01:24:26.053 --> 01:24:28.338 we don't see themselves bearing

NOTE Confidence: 0.7725349

01:24:28.338 --> 01:24:30.839 that device 100% of the time.

NOTE Confidence: 0.7725349

01:24:30.839 --> 01:24:32.411 So unfortunately the clinical

NOTE Confidence: 0.7725349

01:24:32.411 --> 01:24:34.880 trials were not properly designed.

NOTE Confidence: 0.7725349

01:24:34.880 --> 01:24:37.705 That led to the approval

NOTE Confidence: 0.7725349

01:24:37.705 --> 01:24:40.530 and basically there was no.

NOTE Confidence: 0.7725349

01:24:40.530 --> 01:24:42.490 In in that phase trial,

NOTE Confidence: 0.7725349

01:24:42.490 --> 01:24:44.812 the control arm was not blinded

NOTE Confidence: 0.7725349

01:24:44.812 --> 01:24:47.703 and there was no sham device which

NOTE Confidence: 0.7725349

01:24:47.703 --> 01:24:50.636 would be the best control for this

NOTE Confidence: 0.7725349

01:24:50.725 --> 01:24:53.469 type of try and that was not done.

NOTE Confidence: 0.7725349

01:24:53.470 --> 01:24:55.178 But in any case,

NOTE Confidence: 0.7725349

01:24:55.178 --> 01:24:56.886 the evidence points that

NOTE Confidence: 0.7725349

01:24:56.886 --> 01:24:59.188 there could be some activity.

NOTE Confidence: 0.7725349

01:24:59.190 --> 01:25:01.005 And some patients choose to

NOTE Confidence: 0.7725349

01:25:01.005 --> 01:25:02.820 use and others prefer not.

NOTE Confidence: 0.7725349

01:25:02.820 --> 01:25:04.640 To use most clinical trials.

NOTE Confidence: 0.7725349

01:25:04.640 --> 01:25:07.838 They do not allow for the

NOTE Confidence: 0.7725349

01:25:07.838 --> 01:25:10.430 concomitant use of up to.

NOTE Confidence: 0.7725349

01:25:10.430 --> 01:25:11.590 OK,

NOTE Confidence: 0.7725349

01:25:11.590 --> 01:25:14.300 next.

NOTE Confidence: 0.8507365

01:25:14.300 --> 01:25:16.244 If unable to access the nurse

NOTE Confidence: 0.8507365

01:25:16.244 --> 01:25:18.180 surgical care team on our case,

NOTE Confidence: 0.8507365

01:25:18.180 --> 01:25:20.756 receiving care from a team in another state,

NOTE Confidence: 0.8507365

01:25:20.760 --> 01:25:22.698 and we're putting an emergent situation

NOTE Confidence: 0.8507365

01:25:22.698 --> 01:25:24.576 like an extended seizure, for example,

NOTE Confidence: 0.8507365

01:25:24.576 --> 01:25:27.689 would it be best to admit to an ER within

NOTE Confidence: 0.8507365

01:25:27.689 --> 01:25:30.125 a hospital that has a functional MRI?

NOTE Confidence: 0.8507365

01:25:30.130 --> 01:25:32.097 Should I make that a priority while

NOTE Confidence: 0.8507365

01:25:32.097 --> 01:25:34.084 waiting to see if stabilization and

NOTE Confidence: 0.8507365

01:25:34.084 --> 01:25:36.256 transferred to care team as possible?

NOTE Confidence: 0.8507365

01:25:36.260 --> 01:25:38.198 I'm a caregiver so, you know,

NOTE Confidence: 0.8507365

01:25:38.200 --> 01:25:41.088 this is a difficult situation in that most

NOTE Confidence: 0.8507365

01:25:41.088 --> 01:25:43.345 most patients and care providers don't

NOTE Confidence: 0.8507365

01:25:43.345 --> 01:25:45.940 know or care Givers rather don't know.

NOTE Confidence: 0.8507365

01:25:45.940 --> 01:25:48.008 What they're what they're necessarily being

NOTE Confidence: 0.8507365

148

01:25:48.008 --> 01:25:51.345 told and and and you see a neurosurgeon and

NOTE Confidence: 0.8507365

01:25:51.345 --> 01:25:53.535 this neurosurgeon sounds pretty capable,

NOTE Confidence: 0.8507365

01:25:53.540 --> 01:25:55.440 an incompetent and so you

NOTE Confidence: 0.8507365

01:25:55.440 --> 01:25:56.960 don't really know Ann.

NOTE Confidence: 0.8507365

01:25:56.960 --> 01:25:59.616 You're a lot of times patients I see

NOTE Confidence: 0.8507365

01:25:59.616 --> 01:26:02.351 two are being told that you know

NOTE Confidence: 0.8507365

01:26:02.351 --> 01:26:04.827 this is emergent surgery and rushing

NOTE Confidence: 0.8507365

01:26:04.827 --> 01:26:07.599 to surgery and that sort of thing.

NOTE Confidence: 0.8507365

01:26:07.600 --> 01:26:10.640 What I always say is, it's really important,

NOTE Confidence: 0.8507365

01:26:10.640 --> 01:26:12.920 I think, to get second opinions.

NOTE Confidence: 0.8507365

01:26:12.920 --> 01:26:16.338 Of course you know if it's life or death,

NOTE Confidence: 0.8507365

01:26:16.340 --> 01:26:17.984 that sort of thing.

NOTE Confidence: 0.8507365

01:26:17.984 --> 01:26:20.039 You don't have that luxury.

NOTE Confidence: 0.8507365

01:26:20.040 --> 01:26:24.506 Having said that, most tumors are not.

NOTE Confidence: 0.8507365

01:26:24.510 --> 01:26:26.034 Immediately life or death,

NOTE Confidence: 0.8507365

01:26:26.034 --> 01:26:29.190 and so there there can be some time,

NOTE Confidence: 0.8507365

01:26:29.190 --> 01:26:31.140 typically to consult with an

NOTE Confidence: 0.8507365

01:26:31.140 --> 01:26:33.090 academic centers such as ours,

NOTE Confidence: 0.8507365

01:26:33.090 --> 01:26:36.210 even if it is a long distance away.

NOTE Confidence: 0.8507365

01:26:36.210 --> 01:26:39.003 We frequently have those calls or emails

NOTE Confidence: 0.8507365

01:26:39.003 --> 01:26:41.678 or consultations and so then you can

NOTE Confidence: 0.8507365

01:26:41.678 --> 01:26:43.796 understand what what you're up against

NOTE Confidence: 0.8507365

01:26:43.864 --> 01:26:46.348 and what the recommendations would be,

NOTE Confidence: 0.8507365

01:26:46.350 --> 01:26:49.080 even if it's not realistic for traveling.

NOTE Confidence: 0.8507365

01:26:49.080 --> 01:26:52.083 But I would always suggest making sure

NOTE Confidence: 0.8507365

01:26:52.083 --> 01:26:55.060 an asking numbers to you know how many.

NOTE Confidence: 0.8507365

01:26:55.060 --> 01:26:57.124 Surgery is just the does the

NOTE Confidence: 0.8507365

01:26:57.124 --> 01:26:58.500 neurosurgeon perform a year.

NOTE Confidence: 0.8507365

01:26:58.500 --> 01:27:00.095 But how many brain tumor

NOTE Confidence: 0.8507365

01:27:00.095 --> 01:27:02.280 surgeries does he or she perform?

NOTE Confidence: 0.8507365

01:27:02.280 --> 01:27:04.350 And is this what he does?

NOTE Confidence: 0.8507365

01:27:04.350 --> 01:27:06.408 Or is he a general neurosurgeon?

NOTE Confidence: 0.8507365

01:27:06.410 --> 01:27:08.930 Does he do spine or surgery etc and

NOTE Confidence: 0.8507365

01:27:08.930 --> 01:27:11.315 that can give a little bit more

NOTE Confidence: 0.8507365

01:27:11.315 --> 01:27:13.440 info about that and then other

NOTE Confidence: 0.8507365

01:27:13.440 --> 01:27:15.995 people are just saying thank you so

NOTE Confidence: 0.8507365

01:27:15.995 --> 01:27:18.450 thank you for thanking us an then.

NOTE Confidence: 0.8507365

01:27:18.450 --> 01:27:20.520 Oh yeah, there's more questions here.

NOTE Confidence: 0.7316858

01:27:23.130 --> 01:27:26.938 OK, for recurrent GM off study do you

NOTE Confidence: 0.7316858

01:27:26.938 --> 01:27:30.760 use Avastin alone or have you combined

NOTE Confidence: 0.7316858

01:27:30.760 --> 01:27:33.880 with lomustine or arena tecan? Yeah,

NOTE Confidence: 0.89175946

01:27:33.880 --> 01:27:37.597 so I think most of us based on some.

NOTE Confidence: 0.89175946

01:27:37.600 --> 01:27:41.320 Unperfect studies.

NOTE Confidence: 0.89175946

01:27:41.320 --> 01:27:43.780 That should be taken so that

NOTE Confidence: 0.89175946

01:27:43.780 --> 01:27:46.230 is no longer used in gems.

NOTE Confidence: 0.89175946

01:27:46.230 --> 01:27:48.932 Elect activity as a single agent and

NOTE Confidence: 0.89175946

01:27:48.932 --> 01:27:51.548 also in studies with Avastin, Lomustine.

151

NOTE Confidence: 0.89175946

01:27:51.548 --> 01:27:53.588 The jury is still out.

NOTE Confidence: 0.89175946

01:27:53.590 --> 01:27:56.824 I do offer that for pieces that

NOTE Confidence: 0.89175946

01:27:56.824 --> 01:28:00.054 can tolerate that and they have

NOTE Confidence: 0.89175946

01:28:00.054 --> 01:28:01.800 empty empty metalation.

NOTE Confidence: 0.89175946

01:28:01.800 --> 01:28:03.628 Specially if they responded

NOTE Confidence: 0.89175946

01:28:03.628 --> 01:28:05.456 well to alkylating agents,

NOTE Confidence: 0.89175946

01:28:05.460 --> 01:28:07.708 it's a potentially helpful,

NOTE Confidence: 0.89175946

01:28:07.708 --> 01:28:10.518 but there are no randomized

NOTE Confidence: 0.89175946

01:28:10.518 --> 01:28:12.448 trials to prove that.

NOTE Confidence: 0.89175946

01:28:12.450 --> 01:28:13.530 I really individualize

NOTE Confidence: 0.8749054

01:28:13.530 --> 01:28:17.219 it for a patient in my practice.

NOTE Confidence: 0.8749054

01:28:17.220 --> 01:28:19.186 On their performance

NOTE Confidence: 0.8749054

01:28:19.186 --> 01:28:21.280 status molecular factors.

NOTE Confidence: 0.8749054

01:28:21.280 --> 01:28:22.489 So doctor will turn.

NOTE Confidence: 0.8749054

01:28:22.489 --> 01:28:24.540 I would like to add for outside

NOTE Confidence: 0.8749054

01:28:24.604 --> 01:28:26.579 opinions with the kovid pandemic.

NOTE Confidence: 0.8749054

01:28:26.580 --> 01:28:27.728 Telemedicine is expanded and

NOTE Confidence: 0.8749054

01:28:27.728 --> 01:28:29.163 we offer Tele medicine to

NOTE Confidence: 0.8749054

01:28:29.163 --> 01:28:30.550 patients throughout Connecticut.

NOTE Confidence: 0.8749054

01:28:30.550 --> 01:28:31.543 Tele Medicine Licensure

NOTE Confidence: 0.8749054

01:28:31.543 --> 01:28:33.529 still is a state by state.

NOTE Confidence: 0.8749054

01:28:33.530 --> 01:28:35.518 There is some movement on the federal

NOTE Confidence: 0.8749054

01:28:35.518 --> 01:28:37.101 level to get more reciprocity

NOTE Confidence: 0.8749054

01:28:37.101 --> 01:28:39.111 so we can do more telemedicine

NOTE Confidence: 0.8749054

01:28:39.111 --> 01:28:40.809 consoles in different states,

NOTE Confidence: 0.8749054

01:28:40.810 --> 01:28:42.465 but that is something that

NOTE Confidence: 0.8749054

01:28:42.465 --> 01:28:44.120 we can take advantage of.

NOTE Confidence: 0.8749054

01:28:44.120 --> 01:28:46.106 An ideal has a good platform

NOTE Confidence: 0.8749054

01:28:46.106 --> 01:28:47.099 for Tele Medicine.

NOTE Confidence: 0.87265915

01:28:48.040 --> 01:28:50.656 And even during pandemic we have

NOTE Confidence: 0.87265915

01:28:50.656 --> 01:28:52.400 been transferring patients from

NOTE Confidence: 0.87265915

01:28:52.468 --> 01:28:54.946 from outside who want to seek the

NOTE Confidence: 0.87265915

01:28:54.946 --> 01:28:58.380 best care possible here. So yeah.

NOTE Confidence: 0.87265915

01:28:58.380 --> 01:29:00.660 Just because we were talking about

NOTE Confidence: 0.87265915

01:29:00.660 --> 01:29:03.742 avast and I think just why is Avastin

NOTE Confidence: 0.87265915

01:29:03.742 --> 01:29:06.493 called the last resort drug and is

NOTE Confidence: 0.87265915

01:29:06.493 --> 01:29:09.121 that an accurate description an there

NOTE Confidence: 0.87265915

01:29:09.121 --> 01:29:11.481 was another patient who also described

NOTE Confidence: 0.87265915

01:29:11.481 --> 01:29:15.339 that he has a G BM and did standard of

NOTE Confidence: 0.87265915

01:29:15.339 --> 01:29:18.475 care etc is now currently on Avastin.

NOTE Confidence: 0.87265915

01:29:18.480 --> 01:29:22.305 So why is Avastin used later and do you

NOTE Confidence: 0.87265915

01:29:22.305 --> 01:29:25.304 consider it to be a last resort drug?

NOTE Confidence: 0.8900181

01:29:26.870 --> 01:29:28.670 So I don't think the last

NOTE Confidence: 0.8900181

01:29:28.670 --> 01:29:30.659 resort is a good term here.

NOTE Confidence: 0.8900181

01:29:30.660 --> 01:29:33.560 I think it is.

NOTE Confidence: 0.8900181

01:29:33.560 --> 01:29:36.400 A very helpful drug.

NOTE Confidence: 0.8900181

01:29:36.400 --> 01:29:40.120 It's just about timing to use the drug.

NOTE Confidence: 0.8900181

01:29:40.120 --> 01:29:42.792 Needs to be individualized.

NOTE Confidence: 0.8900181

01:29:42.792 --> 01:29:45.464 Avastin is excellent too.

NOTE Confidence: 0.8900181

01:29:45.470 --> 01:29:48.182 Rapidly shrink tumors and

NOTE Confidence: 0.8900181

01:29:48.182 --> 01:29:51.572 decrease the per tumor edema.

NOTE Confidence: 0.8900181

01:29:51.580 --> 01:29:54.160 Which means that the patients

NOTE Confidence: 0.8900181

01:29:54.160 --> 01:29:56.224 can improve very quickly.

NOTE Confidence: 0.8900181

01:29:56.230 --> 01:29:59.278 And for those patients that have

NOTE Confidence: 0.8900181

01:29:59.278 --> 01:30:01.310 really bad neurologic symptoms.

NOTE Confidence: 0.8900181

01:30:01.310 --> 01:30:03.910 That is the time to use a faster.

NOTE Confidence: 0.8900181

01:30:03.910 --> 01:30:04.300 And

NOTE Confidence: 0.8522799

01:30:04.300 --> 01:30:06.670 I know you guys have oftentimes

NOTE Confidence: 0.8522799

01:30:06.670 --> 01:30:08.570 used it even early on,

NOTE Confidence: 0.8522799

01:30:08.570 --> 01:30:11.279 for you know really large tumor burdens.

NOTE Confidence: 0.8522799

01:30:11.280 --> 01:30:12.832 Multifocal disease where I,

NOTE Confidence: 0.8522799

01:30:12.832 --> 01:30:15.158 you know, in limited with what

NOTE Confidence: 0.8522799

01:30:15.158 --> 01:30:17.876 I can do with a, you know,

NOTE Confidence: 0.8522799

01:30:17.876 --> 01:30:19.040 extensive bihemispheric disease,

NOTE Confidence: 0.8522799

01:30:19.040 --> 01:30:20.588 that kind of thing.

NOTE Confidence: 0.8305622

01:30:21.800 --> 01:30:23.726 Correct, and that's a great point.

NOTE Confidence: 0.8305622

01:30:23.730 --> 01:30:25.330 We use it when needed.

NOTE Confidence: 0.8305622

01:30:25.330 --> 01:30:27.256 It can be used up front.

NOTE Confidence: 0.8305622

01:30:27.260 --> 01:30:29.500 Sometimes the patients are in the hospital.

NOTE Confidence: 0.8305622

01:30:29.500 --> 01:30:31.607 How they're going to get out of

NOTE Confidence: 0.8305622

01:30:31.607 --> 01:30:33.914 the hospital if they have a large

NOTE Confidence: 0.8305622

01:30:33.914 --> 01:30:35.912 tumor that can't talk the catwalk.

NOTE Confidence: 0.8305622

01:30:35.920 --> 01:30:37.845 So these are patients that

NOTE Confidence: 0.8305622

01:30:37.845 --> 01:30:39.770 really need Avastin up front.

NOTE Confidence: 0.8305622

01:30:39.770 --> 01:30:43.181 And I think the why there is so much

NOTE Confidence: 0.8305622

01:30:43.181 --> 01:30:45.756 concerns about the use of Avastin.

NOTE Confidence: 0.8305622

01:30:45.760 --> 01:30:49.344 This becausw we sort of lose the parameter

NOTE Confidence: 0.8305622

01:30:49.344 --> 01:30:52.308 of what's happening to the tumor.

NOTE Confidence: 0.8305622

01:30:52.310 --> 01:30:55.726 So avast and sort of cleans everything.

NOTE Confidence: 0.8305622

01:30:55.730 --> 01:30:58.346 And we do know that these tumors can

NOTE Confidence: 0.8305622

01:30:58.346 --> 01:31:00.249 sometimes continue to progress with no,

NOTE Confidence: 0.8305622

01:31:00.250 --> 01:31:02.504 we're not seeing you're not feeling it,

NOTE Confidence: 0.8305622

01:31:02.510 --> 01:31:05.006 but it sure could be progressing.

NOTE Confidence: 0.8305622

01:31:05.010 --> 01:31:07.786 And changing treatment would be in the order,

NOTE Confidence: 0.8305622

01:31:07.790 --> 01:31:10.065 but it's just if we can't identify

NOTE Confidence: 0.8305622

01:31:10.065 --> 01:31:12.509 when the change of treatment is and

NOTE Confidence: 0.8305622

01:31:12.509 --> 01:31:14.615 for that reason these patients are

NOTE Confidence: 0.8305622

01:31:14.680 --> 01:31:17.280 typically excluded from clinical trials.

NOTE Confidence: 0.8305622

01:31:17.280 --> 01:31:19.236 So that is the only downside,

NOTE Confidence: 0.8305622

01:31:19.240 --> 01:31:19.828 or Dustin,

NOTE Confidence: 0.8305622

01:31:19.828 --> 01:31:21.592 but I think for those patients

NOTE Confidence: 0.8305622

01:31:21.592 --> 01:31:23.669 that require vastly would not be

NOTE Confidence: 0.8305622

01:31:23.669 --> 01:31:25.454 candidates for clinical trials anyways.

01:31:25.460 --> 01:31:27.735 Be 'cause they were not feeling well.

01:31:27.740 --> 01:31:29.833 They were not doing well and they

01:31:29.833 --> 01:31:31.670 couldn't handle a clinical trial.

01:31:31.670 --> 01:31:33.626 So if Avastin is initiated because

01:31:33.626 --> 01:31:34.604 it was needed,

01:31:34.610 --> 01:31:36.566 and I think there is nothing

01:31:36.566 --> 01:31:37.544 wrong about that,

01:31:37.550 --> 01:31:40.330 and I think it is a good drug and I

01:31:40.409 --> 01:31:43.104 think it is vilified a little bit,

01:31:43.110 --> 01:31:45.702 but we now know how to use and

01:31:45.702 --> 01:31:47.040 when to use it.

01:31:49.020 --> 01:31:51.380 That a vest and is not very effective

01:31:51.380 --> 01:31:54.078 for the infiltrating tumor cells of GB,

01:31:54.080 --> 01:31:57.780 M and So what you may see is that a patient,

01:31:57.780 --> 01:31:59.128 after starting a vast,

01:31:59.128 --> 01:32:01.152 then after some months, will have

NOTE Confidence: 0.8415929

01:32:01.152 --> 01:32:02.496 worsening of neurological disabilities.

NOTE Confidence: 0.8415929

01:32:02.500 --> 01:32:04.929 And that's due to the infiltrative tumor

NOTE Confidence: 0.8415929

01:32:04.929 --> 01:32:06.540 cells spreading throughout the brain,

NOTE Confidence: 0.8415929

01:32:06.540 --> 01:32:08.492 which, unfortunately can be

NOTE Confidence: 0.8415929

01:32:08.492 --> 01:32:10.444 resistant to all chemotherapies.

NOTE Confidence: 0.8415929

01:32:10.450 --> 01:32:12.470 Something that we're still working

NOTE Confidence: 0.8415929

01:32:12.470 --> 01:32:14.490 hard on to improve treatments

NOTE Confidence: 0.80878496

01:32:14.490 --> 01:32:17.143 for, but it seems they liked your

NOTE Confidence: 0.80878496

01:32:17.143 --> 01:32:19.738 responses and then the final question,

NOTE Confidence: 0.80878496

01:32:19.740 --> 01:32:22.398 are you using optune novocure up

NOTE Confidence: 0.80878496

01:32:22.398 --> 01:32:25.323 front for most patients with GBS or

NOTE Confidence: 0.80878496

01:32:25.323 --> 01:32:27.815 do you use it in select patients?

NOTE Confidence: 0.77062327

01:32:29.630 --> 01:32:32.378 Well, I think Doctor Moreau made

NOTE Confidence: 0.77062327

01:32:32.378 --> 01:32:34.816 an excellent point that Optune

NOTE Confidence: 0.77062327

01:32:34.816 --> 01:32:37.406 is cumbersome to use divisible.

159

NOTE Confidence: 0.77062327

01:32:37.410 --> 01:32:42.177 Evidence that you have malignant brain tumor.

NOTE Confidence: 0.77062327

01:32:42.180 --> 01:32:43.926 So it's up to a patient.

NOTE Confidence: 0.77062327

01:32:43.930 --> 01:32:45.960 You know it's something that they do.

NOTE Confidence: 0.77062327

01:32:45.960 --> 01:32:47.706 And as as a Neural Oncologist,

NOTE Confidence: 0.77062327

01:32:47.710 --> 01:32:49.817 it's after you prove treatment that I

NOTE Confidence: 0.77062327

01:32:49.817 --> 01:32:51.780 make patients aware of offered to them.

NOTE Confidence: 0.77062327

01:32:51.780 --> 01:32:53.346 Tell them the data and then

NOTE Confidence: 0.77062327

01:32:53.346 --> 01:32:54.980 it's up to a patient.

NOTE Confidence: 0.77062327

01:32:54.980 --> 01:32:56.480 Some patients are able to embrace

NOTE Confidence: 0.77062327

01:32:56.480 --> 01:32:58.190 up to use it effectively,

NOTE Confidence: 0.77062327

01:32:58.190 --> 01:32:59.060 and then others.

NOTE Confidence: 0.77062327

01:32:59.060 --> 01:33:00.800 It would be challenging for them,

NOTE Confidence: 0.77062327

01:33:00.800 --> 01:33:02.255 and it's not something that

NOTE Confidence: 0.77062327

01:33:02.255 --> 01:33:03.710 they think is worth it,

NOTE Confidence: 0.77062327

01:33:03.710 --> 01:33:05.456 and the respect of persons decision,

NOTE Confidence: 0.77062327

01:33:05.460 --> 01:33:07.788 no matter which they choose and help them.

NOTE Confidence: 0.77062327

01:33:07.790 --> 01:33:08.364 You know,

NOTE Confidence: 0.77062327

01:33:08.364 --> 01:33:10.373 try to have the best treatment and

NOTE Confidence: 0.77062327

01:33:10.373 --> 01:33:11.860 outcomes that they could have.

NOTE Confidence: 0.8041939

01:33:13.510 --> 01:33:16.156 Yeah, well, I had a patient that was an

NOTE Confidence: 0.8041939

01:33:16.156 --> 01:33:18.607 engineer living in the middle of the Woods.

NOTE Confidence: 0.8041939

01:33:18.610 --> 01:33:21.610 We was very averse to people and he loved it.

NOTE Confidence: 0.8041939

01:33:21.610 --> 01:33:24.310 He were his device and he was an engineer.

NOTE Confidence: 0.8041939

01:33:24.310 --> 01:33:26.389 He thought he was a really cool

NOTE Confidence: 0.8041939

01:33:26.389 --> 01:33:28.809 thing and did not bother him at all.

NOTE Confidence: 0.8041939

01:33:28.810 --> 01:33:31.026 So for that kind of patient, sure.

NOTE Confidence: 0.8041939

01:33:31.026 --> 01:33:34.354 And then I have my Manhattan patients that

NOTE Confidence: 0.8041939

01:33:34.354 --> 01:33:37.042 would never actually wear that because

NOTE Confidence: 0.8041939

01:33:37.042 --> 01:33:40.515 they would never want to go to work even

NOTE Confidence: 0.8041939

01:33:40.515 --> 01:33:43.060 if they want to be seen wearing that.

NOTE Confidence: 0.8041939

01:33:43.060 --> 01:33:44.540 And for those patients,

01:33:44.540 --> 01:33:46.934 it was more important their appearance in

01:33:46.934 --> 01:33:49.598 their college life than the downsides of

01:33:49.598 --> 01:33:51.563 the potential benefits from opportunity.

01:33:52.220 --> 01:33:54.764 I think in the end it's again what

01:33:54.764 --> 01:33:56.754 we're all saying is, you know,

01:33:56.754 --> 01:33:58.693 a lot of these decisions are made

01:33:58.693 --> 01:34:00.850 in conjunction with the patients,

01:34:00.850 --> 01:34:02.510 and being informed is the

01:34:02.510 --> 01:34:03.506 most important thing.

01:34:03.510 --> 01:34:05.225 And being surrounded by expert

01:34:05.225 --> 01:34:07.576 opinions and experts in the field who

01:34:07.576 --> 01:34:09.564 can really give you all the options

01:34:09.564 --> 01:34:11.808 is really the most important thing.

01:34:11.810 --> 01:34:13.532 And we here are always available

01:34:13.532 --> 01:34:15.520 to answer any of those questions

01:34:15.520 --> 01:34:17.450 or give consultations as well.

NOTE Confidence: 0.8742518

01:34:17.450 --> 01:34:19.466 So and I also see Chris Cossano

NOTE Confidence: 0.8742518

01:34:19.466 --> 01:34:21.207 who's the president of Connecticut

NOTE Confidence: 0.8742518

01:34:21.207 --> 01:34:22.428 Brain Tumor Alliance.

NOTE Confidence: 0.8742518

01:34:22.430 --> 01:34:24.766 He thanked us as well and we thank

NOTE Confidence: 0.8742518

01:34:24.766 --> 01:34:27.167 him for his continued support of.

NOTE Confidence: 0.8742518

01:34:27.170 --> 01:34:28.900 Our patients in the Connecticut

NOTE Confidence: 0.8742518

01:34:28.900 --> 01:34:29.938 brain tumor lines.

NOTE Confidence: 0.8742518

01:34:29.940 --> 01:34:31.665 It's a great organization for

NOTE Confidence: 0.8742518

01:34:31.665 --> 01:34:33.045 patients with brain tumors.

NOTE Confidence: 0.8742518

01:34:33.050 --> 01:34:35.462 So in conclusion of did you say

NOTE Confidence: 0.8742518

01:34:35.462 --> 01:34:37.786 vitamin C should not be taken while

NOTE Confidence: 0.8742518

01:34:37.786 --> 01:34:39.279 undergoing chemo or radiation?

NOTE Confidence: 0.8742518

01:34:39.280 --> 01:34:43.368 Yeah, we usually tell you to stop.

NOTE Confidence: 0.8742518

01:34:43.370 --> 01:34:45.130 I tell you to continue it after surgery.

NOTE Confidence: 0.87232035

01:34:47.270 --> 01:34:49.286 It kills me to say that,

NOTE Confidence: 0.87232035

01:34:49.290 --> 01:34:50.970 but yeah, don't take it.

NOTE Confidence: 0.87232035

01:34:50.970 --> 01:34:52.650 Supposedly that's what they said,

NOTE Confidence: 0.87232035

01:34:52.650 --> 01:34:53.988 but in any event,

NOTE Confidence: 0.87232035

01:34:53.990 --> 01:34:56.006 thank you all for being here.

NOTE Confidence: 0.87232035

01:34:56.010 --> 01:34:56.949 It's past 7:30.

NOTE Confidence: 0.87232035

01:34:56.949 --> 01:34:58.827 We so appreciate you being here

NOTE Confidence: 0.87232035

01:34:58.827 --> 01:35:01.046 and spending your evening with us.

NOTE Confidence: 0.87232035

01:35:01.050 --> 01:35:03.730 We hope to do this again in the

NOTE Confidence: 0.87232035

01:35:03.730 --> 01:35:06.008 future for the providers that are on.

NOTE Confidence: 0.87232035

01:35:06.008 --> 01:35:08.101 We even hope to do really kind

NOTE Confidence: 0.87232035

01:35:08.101 --> 01:35:10.446 of like a mock tumor board so

NOTE Confidence: 0.87232035

01:35:10.446 --> 01:35:12.568 you can bring your cases here

NOTE Confidence: 0.87232035

01:35:12.568 --> 01:35:14.758 and we can help provide answers

NOTE Confidence: 0.87232035

01:35:14.758 --> 01:35:17.310 or even to patients we can help.

NOTE Confidence: 0.87232035

01:35:17.310 --> 01:35:19.760 Offer our opinions and such so will

NOTE Confidence: 0.87232035

01:35:19.760 --> 01:35:22.195 look forward to that in the future

NOTE Confidence: 0.87232035

01:35:22.195 --> 01:35:24.531 and please just reach out and contact

NOTE Confidence: 0.87232035

01:35:24.531 --> 01:35:26.843 us if we could be of any help.

NOTE Confidence: 0.87232035

01:35:26.850 --> 01:35:29.930 And to my Co mark my coat speakers.

NOTE Confidence: 0.87232035

01:35:29.930 --> 01:35:32.610 Thank you so much.

NOTE Confidence: 0.87232035

01:35:32.610 --> 01:35:33.240 Have a

NOTE Confidence: 0.82379067

01:35:33.240 --> 01:35:35.625 good night. Have a good

NOTE Confidence: 0.82379067

01:35:35.625 --> 01:35:37.533 night everyone be well.